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Original Communications.

NOTES ON DIABETES, TREATED WITH EXTRACT AND BY GRAFTS OF SHEEP'S PANCREAS.

By P. Watson Williams, M.D. (Lond.),
Senior Assistant Physician, Bristol Royal Infirmary.

No disease has received a larger share of attention at the hands of clinicians, pathologists, and chemists in the last fifty years than has diabetes, while the ample literature and the very diverse opinions that have been advanced by the most able observers in regard to its pathology and treatment testify to the difficulties which surround us when we seek to explain the problems involved. Certain facts recently come to our knowledge seem at first sight to justify very important conclusions as to the real nature of the disease *diabetes*, and to indicate fresh lines of treatment as at least affording some chance of increased control over this disease.

It would serve no useful purpose were I to attempt to review and to reconcile the results of recent investigations in the region of difficulty; they are well known to all physicians who are acquainted with current medical literature, and have proved a source of perplexity to many who are better able than I am to speak on the subject; but as the question of the

treatment of pancreatic diabetes by means of the pancreas or its extracts is a matter of special interest, and more especially as the possibility of treating pancreatic diabetes by means of grafts of pancreas is likely to receive further attention in the immediate future, I think it is my duty to place on record the results in a case unsuccessfully treated by myself, and to indicate what my unfortunate experience may teach us to avoid.

Before relating my own brief experience, I would call to mind the two interesting cases of diabetes resulting from obstruction to the pancreatic duct reported by Freylan,* which support the conclusions of Minkowski, based on his recent investigations in the diabetes resulting from destruction of the pancreas in dogs. In Freylan's first case—that of a man aged thirty-five, who was passing seventy ounces of urine, containing three per cent. of sugar—diabetes was immediately due to tubercular disease of the lungs. The pancreas was atrophied, and no trace of parenchyma was observable in the microscopic sections. The pancreatic duct was completely occluded by concretions of carbonate of lime. His second case was that of a woman passing seventy ounces of urine containing eight per cent. of glucose. Death resulted from kidney-disease, but the pancreatic duct was found blocked with calcareous detritus, and a definite calculus was found in the gland itself, while the gland only contained a few isolated nodules of normal tissue, the remainder being atrophied.

Case I.—C. T., aged fifteen, was admitted to the Bristol Royal Infirmary on July 31, 1893.

He was in good health up to three weeks before admission, when he began to complain of thirst, and was noticed by his parents to be wasting rapidly and getting extremely weak. Patellar tendon reflexes absent; no fatty stools.

On admission he was weak,—rapidly wasting; weight, five stone nine pounds four ounces; skin dry; average daily amount of urine, seventy-seven ounces, containing 3212.1 grains of sugar and two and a half per cent. of urea; daily amount of fluid drunk, seven pints.

The case was so grave that I did not consider I was justified in waiting more than two days on a strict diet, modified by allowing brown bread, before commencing active treatment, for the amount of sugar had risen to nine per cent. in seventy-eight ounces. On August 3, therefore, he had an absolutely restricted diet with gluten bread. From this day he took freshly-minced pancreas for seven days, then 1 drachm freshly-prepared liquid extract of pancreas three times daily with his meals, and had a drachm every time he took any food at all in the intervals, so that he never had any food without pancreatic extract.

This was continued for four days more, the urine, the amount of sugar, and the polydipsia all steadily diminishing, till on August 11 he passed only fifty-six ounces, with 4.16 per cent. of glucose. For four days he had three fluidrachms of the extract hypodermically daily (except on the first of these four days, when he had two), with practically no alteration in the symptoms; then the pancreatic extract was again resumed by the mouth, as before.

By this time the elimination of sugar amounted to about eleven hundred and eighty-eight grains daily,—*i.e.*, was reduced to nearly one-third of what it had been,—the urine passed was about fifty ounces daily, and the polydipsia correspondingly improved.

The diet and administration of pancreatic extract remaining unaltered, he was now ordered one and a half grains of codeine daily. In seven days the sugar averaged four hundred and fifty-six grains and urine fifty ounces daily.

The pancreatic extract was now left off (August 27), as I believed that the reduction of sugar in the first instance was due to the strict dietary and in the second to codeine. No other alteration was made, but within two days the amount of sugar nearly trebled; in four days it had risen from an average of 1.9 to 7.1 per cent. But after simply resuming the pancreatic extract, it remained as high as ever, and only fell slightly on changing the gluten bread for Clarke's starchless biscuits. In the mean while he gained five pounds, but had again lost four pounds in weight.

On September 18 the codeine was increased to two and a half grains daily, but without benefit. Without further alteration, the freshly-prepared glycerin pancreatic extract by the mouth was discontinued on September 20, and 1 drachm daily of pancreatic extract, prepared in Paris by Brown-Séquard and D'Arsonval's process, was given hypodermically for eleven days. The amount of sugar eliminated rather increased, and here the treatment by pancreatic extract was left off. The boy was—in spite of a very fair trial of pancreatic extract both by the mouth and under the skin, combined with strictest regimen, and both without codeine and subsequently with two and a half grains daily—practically in the same position as on

* *Berl. Klin. Woch.*, No. 6, 1893.

admission. He was passing 8.2 per cent. of sugar in sixty-six ounces of urine daily.

On October 6 the codeine was increased by four grains a day. In six days' time he began to be a little sleepy in the daytime, although getting up every day. There was a slight diminution in the amount of sugar eliminated (6.2 per cent. in about sixty ounces of urine).

On October 14 I obtained a supply of freshly-prepared orchitic fluid, procured from a young bull by D'Arsonval's process by my friend Dr. Pagan Lowe, of Bath, and without any other alteration in the conditions, the patient had 1 drachm daily injected hypodermically, and as he felt so much brighter and better, this was continued, and although the amount of sugar passed was at first increased, it again decreased to about 5.5 per cent. in fifty-five ounces.

October 26.—The codeine discontinued, but the amount of sugar so greatly increased that in twelve days I felt it advisable to give morphine (¾ grain daily at first, subsequently less).

At first the effect of the morphine was very satisfactory, but about December 17 it appeared to be losing its power of controlling the diabetes, and once more the glucose rose to 8.3 per cent. in eighty ounces of urine.

The advisability of resorting to grafts of sheep's pancreas had occurred to me, and my medical colleagues, who had kindly seen this case with me frequently during the time the patient was under my care, agreed with me that the case was one which offered some chance of benefit from such a procedure, seeing that laboratory investigations of Minkowski and others appeared to lend some hope that the patient might be favorably modified.

I had previously visited a neighboring slaughter-house in order to familiarize myself with the best method of rapidly extracting the pancreas from a sheep. By suspending the carcass by the hinder extremities, one had only to open the abdomen and allow the intestines and stomach to fall down, and the pancreas was exposed and readily removed.

On December 20 my surgical colleague, Mr. Harsant, placed the patient under chloroform, while I extracted the pancreas with strict aseptic precautions from a freshly-slaughtered sheep, so that by the time the patient was anæsthetized the pancreas was at hand, and three pieces, each the size of a Brazil-nut, had been grafted into the subcutaneous tissues of the breast and abdomen, and the operation completed within twenty minutes of the death of the sheep. The patient was under the anæsthetic a quarter of an hour. The wounds were dressed antiseptically. He passed one hundred and sixteen ounces of urine, containing 7.4 per cent. of sugar in the following twenty-four hours.

On December 22 ninety-five ounces of urine containing 3.12 per cent. of sugar were passed. The incisions appeared perfectly healthy, and Mr. Harsant considered that they were healing by first intention; but he felt very depressed and weaker and drowsy, and there was every indication of coma supervening. The urine yielded a more decided acetone reaction, although this had been noticed in a less degree for some weeks. With a view to prevent the onset of coma, bicarbonate of potassium was administered and an aperient ordered.

On the 23d he died comatose. Large doses of citrate of potassium by the mouth, combined with thirty grains of bicarbonate of sodium, given hypodermically in three doses, had had no effect whatever. Oxygen inhalations and oxygen water had also been tried.

At the autopsy on the following day the heart and lungs were found to be normal, but the liver and kidneys were enlarged and fatty.

The pancreas only weighed half an ounce in its capsule. It was small, shrivelled in appearance, and seemed to be little else than fibrous tissue. Examination of sections of the pancreas showed that almost all the secreting structure had disappeared, and that the gland consisted of little else but fibrous stroma.

The grafts had apparently failed to become united with the tissues around, and though the incisions in the skin had apparently united, numerous micrococci were found on microscopical examination, but the autopsy was made sixteen hours after death from diabetic coma.

Remarks.—I think that the considerable number of cases of diabetes that have now been recorded as having been treated with pancreatic extract by the mouth have shown that practically nothing can be expected from such treatment. In the case of C. T. the method received a very fair trial, the freshly-prepared extract being given first every time the patient took any food whatever, and subsequently by cutaneous injection.

Of course, in some respects this was not a typical case of pancreatic diabetes, inasmuch as the amount of urine was not very excessive and there were no fatty stools, but I think the history of the case and the post-mortem examination of the pancreas leave no doubt that it was rightly considered to be pancreatic diabetes, and one that presented all the conditions that might lead one to hope for a beneficial re-

sult from successful grafting of the pancreas, if anything can be hoped for in this direction at all.

Failure was possibly due to obtaining the graft from a sheep that had been killed by bleeding, and I fear may have been rendered more likely from the administration of the anæsthetic. If I ever again felt justified in resorting to pancreatic grafts in a similar case, I should obtain them from a living animal anæsthetized, and dispense with the anæsthetic altogether.

CASE II.—W. H., male, aged forty-seven. Symptoms of diabetes began about February, 1892. In November he came under me, when I took him into the Royal Infirmary. He was passing sixty-five ounces of urine daily, containing about 1245 grains of sugar. After a restricted diet, and while taking small doses of phosphorus and arsenic, the amount of sugar increased to 1800 grains daily. On the same diet, but taking 1 grain of codeine daily for four days, the amount of urine increased to eighty-eight ounces, with 1920 grains of sugar daily; but after persisting in this course of treatment for twenty-nine days the sugar eliminated amounted to 1742 grains daily. At this point (January 12, 1893) I gave him 40 minims of pancreatic extract (the freshly-prepared glycerin extract) daily as a hypodermic injection. After a few days the extract was given instead by the mouth for some days, but under the treatment by pancreatic extract his condition remained in *statu quo*. The patient was then placed on codeine, with strict diet, and he improved greatly, and eventually completely recovered. In this case the fresh pancreatic extract, whether given hypodermically or by the mouth, was valueless, yet codeine and dieting brought about complete recovery.

CASE.—C. T., on admission, first two days, average amount of sugar passed in twenty-four hours, 3212.1 grains.

August 11.—After four days' strict diet and pancreatic extract by mouth, average amount of sugar passed in twenty-four hours, 978.8 grains.

August 15 and 16.—After four days' strict diet and pancreatic extract hypodermically, average amount of sugar passed in twenty-four hours, 983.8 grains.

August 18 and 19.—After pancreatic extract resumed by the mouth, average amount of sugar passed in twenty-four hours, 1188 grains.

August 26.—After seven days of pancreatic extract by mouth, strict diet, and codeine 1½ grains daily, average amount of sugar passed in twenty-four hours, 456 grains.

August 31.—After four days of same conditions, except that the pancreatic extract was discontinued, average amount of sugar passed in twenty-four hours, 1872 grains.

September 18.—After conditions of August 26 had been resumed for eighteen days, average amount of sugar passed in twenty-four hours, 1733 grains.

NOTES ON SOME NEW DRUGS USEFUL IN OPHTHALMOLOGY.

READ BEFORE THE SECTION OF OPHTHALMOLOGY, BRITISH MEDICAL ASSOCIATION, BRISTOL MEETING, 1894.

BY T. J. BOKENHAM, M.R.C.S., L.R.C.P.,
Research Scholar, British Medical Association.

DURING the past year or more I have made it my business to test the utility of several drugs of recent introduction. The properties of some of these seem to indicate that they may occupy a prominent place in ocular therapeutics, and I take this opportunity of bringing them more prominently into notice, so that others who may have more extensive opportunities of observation than myself may add their testimony to my own. Without further prelude I will now proceed to my subject.

Scopolamine.—Some time during 1889 a rhizome appeared in the market, imported from Germany, where it was stated to be indigenous. It was introduced as a new and cheap source of atropine, and its juice certainly had powerful mydriatic properties. It was identified as the rhizome of *Scopolia Carniolica*, and its chemistry was investigated by Dunstan and Chaston on behalf of the Pharmaceutical Society. These observers found it to contain almost pure hyoscyamine, with a mere trace of hyoscine, and no other alkaloids. As, however, the chemistry of the *Solanaceæ* is wrapped in considerable obscurity, owing to the ease with which one alkaloid passes into another in process of isolation, the chief point of interest in these researches is the proof that the rhizome contained a mydriatic alkaloid chemically indistinguishable from hyoscyamine.*

My attention was first drawn to this new drug in 1890, when I received a specimen of the new alkaloid from Messrs. Burroughs and Wellcome. I was at that time working in Dr. Lauder Brunton's laboratory at St. Bartholomew's Hospital, and I there made several ob-

* *Pharm. Journ.*, December 14, 1889; Schmidt, *Pharm. Zeit.*, September 25, 1889; Siebert, *Arch. der Pharm.*, February 20, 1890.

servations as to its effect on blood-pressure, pulse, etc. Its general action on animals was not, however, thoroughly tested, as rodents—the only animals I had at my disposal—are not easily susceptible to the action of the atropoid alkaloids. On myself the hypodermic injection of .01 grain was practically without effect, producing neither excitement, dryness of the throat, nor dilatation of the pupil. Some clinical investigations by Sir Dyce Duckworth also seemed to show that the drug had many of the advantages of atropine, while not sharing all its drawbacks.

In rabbits and cats under anæsthesia, tracings of the carotid pressure before and after the injection of a solution of scopolamine showed that the drug in moderate doses had little or no effect either on the rapidity or force of the heart-beat. After a dose which, had it been atropine, would have quickened the heart (cat) by paralysis of the inhibitory fibres of the vagus, the pulse was slightly slowed, and it was only after very large doses that acceleration was observed, and even then the vago-inhibitory effect was not completely abolished.

Its mydriatic effect was tested both in animals and on myself. In my own case a solution of 1 to 1000 was employed, and I found that instillation of 2 or 3 drops twice, at intervals of half an hour, was sufficient to produce complete dilatation of the pupil and paralysis of accommodation. No unpleasant phenomena accompanied this action, my accommodation being almost restored after thirty-six hours, and the pupil being normal in a little less than three days; only one eye was drugged.

Seeing that scopolamine had again recently attracted the attention of foreign ophthalmologists, notably of Raehlmann,* who reported most favorably on its action as a paralyzant of accommodation, I procured a fresh specimen of the hydrobromate, through Messrs. Burroughs and Wellcome. This I have used in a number of cases where I should ordinarily have employed belladonna. With a strength of 1 to 250 I find that three instillations within an hour are sufficient to produce complete cycloplegia, so that an error of refraction can be estimated with accuracy. In a fair number of observations I have not once seen the production of undesirable complications, such as excitement, dryness of the throat, or erythema, even in children, who are most susceptible to the action of atropine. I have generally, my observations being concluded, introduced an eserine disk (Wyeth), in order to hasten the return of accommodative power, but I do not know that this is quite necessary, for in three days at most the eyes may be considered normal.

Personally, I have had but little experience of scopolamine for other purposes than to facilitate the estimation of refraction. Raehlmann, however, speaks of its utility in inflammatory conditions of the cornea, phlyctenular keratitis, corneal ulcer, iritis, etc., the drug being well borne where atropine was not tolerated, and producing no rise of tension even when used day after day.

My own experience of the strength necessary coincides with that of other observers. A strength of 1 to 250 and 1 to 500 is quite sufficient for all purposes for which atropine can be required, and an even weaker solution is often admissible.

I must add also the results obtained by Pooley (THERAPEUTIC GAZETTE, March, 1894). This observer, while considering scopolamine as useful in any cases where an atropoid action is desired, yet utters a note of warning necessitated by his own experience.

In three cases, each of which had obtained the drug from a chemist and made the instillations personally, unpleasant phenomena resembling those of atropine-poisoning ensued. It is possible, however, that the solution was used with undue frequency or too liberally, as these are the only three observations of a similar nature on record.

To conclude, I would counsel a trial of scopolamine,—

1. Because its action is slightly more powerful than that of homatropine.

2. Because its action is more rapid than that of atropine and a less quantity is required to produce the same effect.

3. Because its action passes off with greater rapidity than that of atropine.

4. Because toxic symptoms seem little likely to ensue from its use.

Tropa-Cocaine. — Quite recently I have brought a number of my observations with this drug before the Ophthalmological Society, so that on this occasion I can be quite brief. My experience with tropa-cocaine as a local anæsthetic has since the paper mentioned increased considerably, and I am pleased to say that my opinion as to the utility of the drug for this purpose remains unaltered. Its great value resides in the fact that by its aid local anæsthesia can be produced uncomplicated by dilatation of the pupil or loss of accommodative power. This is a great boon to, say, a patient who only needs the painless removal of a foreign

* *Klin. Monatsb. für Augen.*, February, 1893.

body. I formerly employed the drug in tabloid form, but I think that it is perhaps less irritating on first application if used in solution, a strength of three per cent. being quite sufficient for most purposes.

TREPHINING FOR MIDDLE MENINGEAL HEMORRHAGE WITHOUT FRACTURE OF THE SKULL.

Read at the February Meeting of the Philadelphia Neurological Society, 1894.

By William J. Taylor, M.D., Philadelphia, Pa.,
Professor of Orthopædic Surgery in the Philadelphia Polyclinic; Attending Surgeon to St. Agnes's Hospital; Assistant Surgeon to the Orthopædic Hospital and Infirmary for Nervous Diseases.

EXTRADURAL hemorrhage without fracture of the skull is due in nearly every instance to rupture of the middle meningeal artery or one of its branches. This artery springs from the internal maxillary and enters the cranium through the foramen spinosum; it then divides into two branches,—the anterior and the posterior. The anterior or larger branch crosses the great ala of the sphenoid, and reaches the groove or canal in the anterior inferior angle of the parietal bone, when it divides into branches, to be distributed over the dura mater and inner surface of the cranium. The posterior branch crosses the squamous portion of the temporal bone, and on the inner surface of the parietal bone divides into branches to supply the posterior part of the dura and cranium.

One or both branches of the artery may be ruptured; the main trunk is seldom injured. Very occasionally the vessels upon the opposite side of the skull from the point of injury are torn by counter-stroke, and when this occurs it is only by the localizing symptoms that we are able to find the bleeding vessel. The cause is usually a fall upon the head, and often from a very short distance, or it may be due to a blow of the fist or some heavy instrument. The amount of violence necessary to produce rupture of these vessels is frequently very slight, and at times not sufficient to cause the individual to fall to the ground if struck a blow on the head, or to produce even momentary unconsciousness.

The adhesions between the dura mater and the bone are weakest in the temporal fossa, and it is for this reason that the artery may be ruptured by a force which is sufficient to detach the dura, yet not so violent as to fracture the bone.

The anterior branch is frequently in a groove, and it is most often torn as it crosses the anterior inferior angle of the parietal bone.

There often intervenes between the time of the stunning, or it may be insensibility, produced by the original violence a period of consciousness, but this is not always so. Jacobson mentions this as occurring in thirty-two out of sixty-three cases of middle meningeal hemorrhage from all causes. This may last for only a few moments, and can thus be readily overlooked, or it may exist for some hours or even days. This period of consciousness, which finally lapses into coma, is by far the most important symptom, and is, indeed, worth all the other symptoms combined in enabling us to form a correct diagnosis. Paralysis, or rather hemiplegia, may then come on, which gradually extends as the clot increases in size and presses upon the cortical motor centres. If the amount of hemorrhage be small, we may only have evidences of a cortical irritation in the form of convulsive movements of the arm and leg of one side. This cortical irritation was pronounced in one of the cases which I present to-night. There may also be general convulsions. The hemiplegia is usually upon the side opposite to that of the injury; but occasionally the vessel upon the other side of the skull is ruptured by counter-stroke, and then we would have paralysis upon the same side as the injury itself, although I believe there are some very rare instances of paralysis on the same side as the injury when the hemorhage is extradural.

The pupils may be contracted, due to the concussion of the injury, or dilated, if the clot be large and pressing upon the base of the brain. When one pupil is dilated widely, especially if it be on the same side as the injury, it is of the greatest importance, as showing pressure of a large clot.

The pulse, as a rule, is frequent. Unconsciousness varies with the amount of hemorrhage; it may be deep coma from the first, as in Case II., or the patient may possibly be roused and move the limbs when disturbed. Respiration is slow and stertorous. The temperature rises rapidly to 101°, 102°, 103°, and even 104° F.

Whenever we have a case of injury to the head presenting these symptoms, and especially if there be a period of consciousness between the time of the accident and the onset of deepening coma, it is our duty to trephine the skull and search for the source of hemorrhage. We must be guided in so doing by the localizing symptoms and not by the side of the head upon which the injury has been received.

Weisman (*Deutsche Zeitschr. f. Chir.*, Band xxi. Heft 1–3; Band xxii. Heft 2; there is an extended review of this article in the *Annals of Surgery*, December, 1885, p. 502), who has written the most elaborate paper upon this subject, states that in all instances where we have, first, an interval of consciousness between the concussion and the onset of coma; second, hemiplegia; third, an infrequent and hard pulse; and, fourth, slow and embarrassed respiration, with stertor, whether there be a lesion of the skull or not, even of the opposite side, we must trephine.

He further states that when aphasia is present there is an extension of the clot towards the front, when there are disorders of sensibility there is an extension backward, and if there be paralysis of the third pair the extension is towards the base of the brain.

Mr. W. H. A. Jacobson, in his very elaborate paper in "Guy's Hospital Reports for 1885–86," records the history of eight cases of middle meningeal hemorrhage without fracture of the skull.

Seven of these cases received the injuries by falls upon the head and one by a blow from a loaded whip-handle. All of the cases in which a trephine opening was made in the skull—four in number—recovered (Nos. 8, 9, 10, and 19). In the four cases where death ensued (Nos. 2, 3, 20, and 55) no attempt was made to trephine the skull. In three of the latter cases there was an interval of consciousness after the concussion, lasting for some hours. Coma came on only after the patients were in bed and asleep. In one (No. 55) there was no interval of consciousness, as the man was insensible from the first and died in forty-eight hours. The four cases of recovery, and in which trephining was done, were conscious for a period of time before the pressure-symptoms manifested themselves. In one the vessel upon the opposite side of the head from the point of injury was ruptured by a counter-stroke.

Our object in trephining the skull is twofold: first, to stop the hemorrhage from the ruptured vessel; and, second, to relieve the intracranial pressure from the rapidly-enlarging blood-clot.

The opening in the skull should be made with a medium-sized trephine one and a quarter inches behind the external angular process of the temporal bone, on a level with the upper border of the orbit, for at this point the anterior branch of the middle meningeal artery is most readily exposed.

A rongeur forceps should then be used to enlarge the opening sufficiently to enable us to find the source of hemorrhage. If no clot or evidence of bleeding is found, another and similar button of bone should be removed upon the same side of the skull, just below the parietal bosse, on the same level; this will expose the posterior branch of the artery.

As it is almost impossible to say whether the clot is extradural or subdural in the same area by the localizing symptoms alone, an opening should always be made in the dura mater to determine this point, provided the clot is not found directly beneath the bone. This dural opening does not materially increase the danger of the operation when all due antiseptic precautions have been followed, and it should be carefully closed by catgut sutures.

When the clot is found it should be removed by a stream of plain boiled water, allowed to flow freely over the part, aided, if need be, by gentle sponging. If the vessel is still bleeding, it should be ligated with catgut.

When there is difficulty in controlling the hemorrhage by simple circular ligation, a curved needle threaded with catgut should be passed beneath the vessel through the thickness of the dura and securely tied.

When the on-coming coma has been slow to develop, it may be due to a rupture of some one or more of the smaller branches of the vessels, and, if so, it may not be possible to directly locate and ligate the source of hemorrhage, and it may only be controlled by packing with gauze.

When the bleeding vessel has been torn off as it emerges from the groove in the bone, it may be necessary to cut away the bone with forceps and, if need be, pack with iodoform gauze.

In a case reported by Dr. Ransohoff (*Annals of Surgery*, 1890, vol. xii. p. 116) secondary hemorrhage occurred, and it was found necessary to ligate the external carotid artery to control the bleeding; this should be done if it is found impossible to control the hemorrhage by packing.

Drainage by iodoform gauze should always be used, as the amount of wound discharge will be very free for the first day or two. Silkworm-gut sutures are best; it is also best to leave one untied at the point at which the gauze drain emerges; this may be tied when the drain is removed, and complete the closure of the wound.

When rupture of both branches of the artery has occurred, or when drainage from the anterior trephine opening is not sufficiently free, a second opening should be made below the

parietal bosse, and a gauze drain carried from the anterior to the posterior opening.

Dr. J. B. Deaver, in a case of fissure fracture, with rupture of this artery, did this, with most satisfactory results (*Journal of Mental and Nervous Diseases*, February, 1896).

I had thought trephining for hemorrhage from the middle meningeal artery without fracture of the bone a modern procedure, but Mr. Jacobson records a case treated in this manner by Mr. J. Hill on February 27, 1751. The results in this case were so successful that, twenty years after, this man was reported as alive and in good health.

CASE I.—*Middle Meningeal Hemorrhage without Fracture; Trephining; Death; Autopsy.*—The first case which I have to report is that of a man, aged forty-eight, who was admitted to my service at St. Agnes's Hospital on the morning of May 8, 1893. He had fallen down-stairs the night before and struck upon his head. Dr. Theo. Sprissler, who first saw him, was under the impression that his accident was due to some form of cerebral irritation producing giddiness, for there seemed to be no good reason for his fall, and he had had a similar attack some six or eight weeks before. When picked up by his friends he was totally unconscious, and remained so for a few minutes, but soon revived and got upon his feet and walked around the room. Shortly after this—I am unable to state the exact time, but within a half-hour—he became stupid, sank down, and again became unconscious; in this condition he was admitted to the hospital. He could be roused by loud calling and shaking sufficiently to say that he felt very well, but would lapse at once into stupor.

I saw him first at 5.30 P.M., May 8, some eighteen or twenty hours after his accident; there was no evidence whatever of fracture; the pupils were equally contracted; the left eyelid was discolored by extravasated blood, but not so the conjunctiva; there was a bruise just above the left ear.

His breathing was full and labored, with some drawing in of the angle of the mouth on the left side and puffing of the cheek. The left arm and leg were paretic, although he could move them at will. The right arm and leg were in almost constant convulsive movement; these movements were slight, but persistent and unmistakable.

As I had seen him during the temporary absence of my colleague, Dr. J. B. Deaver, I gave general directions and went home. At 10 P.M. I was again called to see him, as his condition had only changed for the worse. All his symptoms were now pronounced and his temperature had risen to 101° F. Evidently there was intracranial hemorrhage, and delay was no longer permissible.

After the head was shaved and thoroughly disinfected, I deliberated for some time as to my course of action. There was undoubted cerebral irritation on the left side,—probably dural,—as was shown by the convulsive movements of the right side, but there was paralysis of the left angle of the mouth and paresis of the left side. Thinking this might be the chief source of trouble, I removed a button of bone with a one-inch trephine at a point one and one-fourth inches above and one and one-fourth inches behind the angular process of the orbit. The anterior branch of the middle meningeal artery was readily seen; it was intact and there was no evidence of bleeding or clot. The dura did not bulge, but I opened it with a small semicircular incision, and by so doing liberated a large quantity—at least one ounce—of clear cerebro-spinal fluid. The dura was much thickened; the cerebral convolutions appeared normal, although the vessels of the pia were somewhat enlarged. The opening in the dura was then united by catgut sutures and the wound in the scalp closed.

I now trephined at a corresponding point on the left side of the head, and upon removing the button of bone a large clot was at once apparent. The anterior branch of the middle meningeal artery was seen to be ruptured and was bleeding freely in little spirts. At least one ounce of dark, clotted blood escaped and welled up from the deeper parts of the skull. The opening in the bone was enlarged with a rongeur forceps sufficiently to enable me to pass a catgut suture under the bleeding vessel and through the dura, thus effectually arresting the hemorrhage. There was some free bleeding from the edge of the bone, but packing with iodoform gauze arrested this readily.

The cerebral irritation improved at once, the convulsive movements ceased, and he reacted quite well from the shock of the operation. He soon began to weaken, however, and gradually sank until his death at 11 P.M., May 10, 1893, forty-eight hours after the operation and seventy-two hours from the time of the accident.

A post-mortem examination was made at 11 A.M., May 11, 1893, just twelve hours after death. The head alone was examined. The wounds were in good condition; that of the right side contained a small organizing clot; that on the left side showed the iodoform

packing and a small clot. The scalp was slightly œdematous. On opening the cranium, the dura mater was found adherent to the under surface of the skull in several places, and at many points adherent to the cerebral convolution; especially was this the case along the superior longitudinal sinus about the region of the leg-centre. The vessels were injected and full of blood. The brain was soft and, with the pia mater, much inflamed. Over the region of the arm- and face-centre, on the left side, was a mass of lymph. The left ventricle was full of dark, blood-stained fluid. There had been a small hemorrhage into the anterior horn of the right ventricle, and in the velum interpositum a hard clot the size of a small pea. I now learned from Dr. Sprissler, who was present at the autopsy, that four weeks before, the man had had a slight stroke of paralysis; he staggered, swayed to and fro for a moment, and then fell unconscious. From this he gradually recovered, but there had been no recovery of consciousness, followed by relapse into unconsciousness, as in the present instance. The cerebellum was soft and congested; the anterior branch of the middle meningeal had ruptured.

Although results, so far as the recovery of the patient was concerned, were bad, the diagnosis of meningeal rupture was confirmed by operation, and had the extent of the former injury been less his chances of recovery would have been good.

Case II.—*Extensive Hemorrhage from both Branches of the Middle Meningeal, without Fracture.*—(This patient was under the care of Dr. W. W. Keen, and through his kindness I am able to present it to-night.) A man aged fifty was admitted to St. Agnes's Hospital at 6.30 A.M. on June 30, 1892, having fallen, a few minutes before, from a hay-loft, striking on the top of his head. When Dr. Keen saw him at 7.30 A.M. he was entirely unconscious, with puffing respiration, 38 to the minute. The lungs were filling with mucus, and the pulse was 100 and of only fair quality. The left pupil was slightly more dilated than the right and rather more sluggish in its reaction to light. In the middle line of the head, at the vertex, was a lacerated scalp wound 2.5 inches long, and slightly to the left of the middle line, over the occiput, another similar scar one inch long. In neither of these wounds was the bone exposed. An incision revealed the fact that there was no fracture. The patient did not move at all, excepting during the making of these incisions, at which time he moved the trunk a little uneasily, but did not move the extremities. He had had slight bleeding from the left nostril, but no discharge of cerebro-spinal fluid from the nasal cavity, nor any discharge whatever from either the mouth or the ears. Dr. Keen therefore felt that fracture of the base could be excluded; fracture of the vault was excluded by direct examination; and although there was no history as to whether any lucid interval had existed between the fall and the unconsciousness, it seemed to him that the cause of the trouble could only be rupture of the middle meningeal artery, and based his diagnosis of the side on which to expect the lesion upon the state of the pupils. Accordingly he trephined at a point one and a quarter inches behind and one inch above the external angular process. The instant the button of bone was removed a dark clot exuded, and so rapidly as to leave no doubt that it was a very large one. As rapidly as possible the bone was gnawed away, upward and backward, with a rongeur forceps, when he found an enormous clot, extending from two inches from the middle line down to the base of the brain, and from one-half an inch back of the external angular process to the occiput. On turning out this clot the anterior branch of the middle meningeal was seen to be ruptured and bleeding at two points,—one a little below the opening and the other a little higher up,—and the posterior branch was likewise ruptured at two points; all four of these were secured by ligatures passed through the dura. The condition of the patient when first seen was very doubtful as to recovery. He died a few minutes after the vessels were secured.

Here the amount of violence inflicted by the fall was too great to permit of benefit from operative interference, as both branches of the artery were ruptured and the amount of hemorrhage and injury to the brain so excessive that recovery was imposible.

For Case III. I am also indebted to Dr. Wharton Sinkler and Dr. W. W. Keen for permission to report, and also for the pleasure of seeing the patient with the latter and Dr. Cross, of Jenkintown.

Although this is not a case of meningeal, but one of subdural hemorrhage, the symptoms were such as to lead us to suppose that the former condition was present.

Case III.—*Intracranial (Cerebral) Hemorrhage, involving the Fibres from the Cuneus, and producing Hemianopsia.*—This patient was a slender woman of sixty-five, who had been ailing from grippe and its sequels for about two years, and who had been recently subject

to attacks of vertigo. On December 28, 1893, when going up-stairs, she fell backward from near the top of the flight, striking on the back of her head. There was no cut, nor any lump, and the only way in which the presumed site of the blow could be fixed was by her wincing when pressure was made over the *right* occiput, and also the unconscious movements of her right hand to that spot, which seemed to give her discomfort. She was picked up unconscious and put to bed. The next day Dr. Cross noticed, in examining her pupils, that when a candle was carried to the *left* of the middle line she followed it, although she was not conscious enough to make known sensations or manifest desires. When the light was carried to the right of the middle line she did not follow it. This was several times repeated, so that Dr. Cross judged that she had hemianopsia, the right half of the field not being seen. There was no paralysis at first, but gradually, in about thirty-six hours after the accident, she became comatose and did not move any of her extremities.

When we saw her, at the request of Dr. Cross and Dr. Sinkler, who had been called in consultation with Dr. Cross, the chest had filled up with mucus and she was evidently dying. It was decided, therefore, to do nothing, and shortly afterwards she expired. The diagnosis was a clot of blood, probably extradural, from the middle meningeal, or possibly subdural, and involving fibres from the cuneus.

Post-Mortem.—I had the good fortune to make the post-mortem examination fourteen hours after death. The head only was examined. There was no evidence of her having struck over the right occiput, so far as the condition of the scalp and underlying tissues would show. The middle meningeal was not ruptured. The meninges were in the early stages of inflammation. A clot of blood nearly as large as an egg was found in the cortex corresponding to the left parietal eminence, and extending deeply into the cerebral substance, so as to involve the fibres from the left cuneus.

Remarks by Dr. Keen.—"When I first saw the patient, Dr. Cross's very shrewd and accurate observation of the fault of vision put us on the right track for the proper surgical treatment had the patient been in suitable condition. The right half of each field being blind, the left half of each retina was the blind portion, these two being supplied from the left cuneus. Had we followed the indications of tenderness over the right occiput and her apparent annoyance from some trouble at this point, as shown by her unconsciously putting her hand there, we should have been led far astray. Basing the diagnosis on cerebral localization, I should have trephined, as I said to Dr. Cross and Dr. Taylor, at a point immediately below the left parietal eminence, in order to reach the posterior branch of the middle meningeal, which I deemed most likely the ruptured vessel.

"The post-mortem makes it more probable that the rupture of the blood-vessel resulting in the cortical clot was the cause and not the result of her fall. The location of the clot, however, was correctly diagnosticated, although its source, of course, could not be absolutely known. The point at which I should have trephined would have been the correct one; but, in view of the origin and size of the clot and of the patient's age and feeble condition, it is very doubtful whether she would have recovered, even had operation been done immediately after the accident. Had the clot been in the ganglia at the base of the brain, as is more common in ordinary cerebral apoplexy, there would have been, of course, a hemiplegia. This rendered the diagnosis of rupture of the middle meningeal posterior branch the more likely one."

116 South Eighteenth Street.

THERAPEUTIC NOTES ON WHOOPING-COUGH.

Read before the Pennsylvania State Medical Society, May 18, 1894.

By W. C. Hollopeter, A.M., M.D.,

Physician to the Methodist Episcopal Hospital; Clinical Professor of Diseases of Children in the Medico-Chirurgical College.

THE prevalence of an unusually severe epidemic throughout our city and the chaotic state of our therapeutic measures are my reasons for this brief paper. The therapeutics of whooping-cough is boundless, and, like phthisis and diphtheria, it covers nearly the whole domain of the Pharmacopœia. This fact alone assures me that we, as yet, have found no specific for it. Those remedies most in vogue are the antispasmodics and the germicides, and they have all been faithfully tried one after the other, and, to a certain extent, seem to have some value. It is not my purpose to enumerate the various remedies that have been used and have become exalted because they have found favor in some practitioners' hands.

We want a specific for this specific disease, for such I regard it, and I feel sure that it will be found among the two classes I mentioned

above,—the antispasmodics and the germicides. Whooping-cough is an exceedingly fatal disease; by most authorities regarded the most fatal of all the diseases of children under one year. The fatality, however, is not limited to the first year of life alone; it continues to manifest itself long after this period, in broken health of all kinds referable to the respiratory, intestinal, as well as the various glandular, organs. I am sure we are all familiar with the more severe sequelæ of whooping-cough. The emaciated child suffering from gastro-intestinal catarrh of a chronic type, the various cheesy glands, the acute or chronic nephritis, the purulent otorrhœa, the chronic bronchitis, the broncho-pneumonias, and pleurisies go to form a goodly portion of our every-day routine practice; and all of these come to us because of the widely-mistaken idea that we can do but little, if anything, in the cure of the original disease. I am at a loss to know why the majority of people regard this disease so lightly,—that it is harmless, that it is self-limited, and does not require any remedial measures,—unless our treatment in the past has been so unsatisfactory and so unscientific! Again, I believe this unsettled state of affairs among the laity as to its incurability is traceable to our own actions in our careless and slovenly manner in the general management of the disorder.

This is not the place to discuss the etiology of the disease, yet this much seems necessary to the correct understanding of the subject. Whooping-cough has a striking parallel to diphtheria, in that it has in its early stages a local manifestation. It has a strong tendency to fasten itself on the throat. How long this period exists I do not know to a certainty; no more than we know just how long diphtheria is purely a local throat poison; yet there is a period in whooping-cough, as there is in diphtheria, long or short, in which the virus—if it could be recognized—could be destroyed and the disease cut short. Aborting cases thus within two weeks—and it is not unusual—explains the number of reported cures made by germicidal remedies. I have notes of two cases which I can recall in which the characteristic whoops commenced at once with the general catarrhal symptoms and were cut short by a hydrogen peroxide gargle. I think these two cases illustrate very strongly the fact that the germs of the disease will locate in part on the mucous membrane of the respiratory passage, and bring about a nerve discharge which ends in the characteristic whoop. In my treatment of this disease I find the greatest necessity in recognizing the nature of the trouble early in the catarrhal stage. If I can satisfy myself that I am dealing with a case of pertussis, my methods of procedure are much different from what they would be if the case were well advanced. We must remember that the two stages are not sharply defined. We have many cases without the catarrhal stage at all, as we have many cases that do not whoop. Children under one year with the disease do not whoop, as a rule, and older children do not always possess the catarrhal indications, yet may whoop vigorously at the very outset of the disease.

The anatomical structure of the infantile larynx under all catarrhal inflammation is convulsive and suggests the nervous mimicry so very difficult of recognition.

The early diagnosis of the disease is of vast importance, as upon it depends the success of the treatment.

The diagnostic point prior to the whooping stage, enunciated by Eustace Smith,—viz., "If the child be made to bend back the head, so that his face becomes almost horizontal and the eyes look straight upward at the ceiling above, a venous hum, varying in intensity according to the size and position of the diseased glands, is heard with the stethoscope placed upon the upper bone of the sternum. As the chin is now slowly depressed, the hum becomes less loudly audible, and ceases shortly before the head reaches its ordinary position,"—has not been very satisfactory. It is true that we do not recognize the hum made thus by the enlarged bronchial glands, but it occurs long after other symptoms are manifest, thus vitiating the importance of this particular symptom.

I have for several years been able to place considerable value on the peculiar puffiness of the mucous membrane of the eyes and the swollen or œdematous condition of the whole face, almost dusky; this condition may exist for days before the catarrhal symptoms have extended throughout the respiratory mucous membrane. The cough at this stage may not be at all suggestive; it may be, in fact, purely bronchial. This symptom of fulness about the eyes, which is quite as constant as in measles, would, in fact, suggest measles as well as pertussis, and with measles it is closely associated and must be differentiated. As we are able to diagnose measles by their appearance first on the hard palate, so I contend we may diagnose whooping-cough, in its earliest stage, by the characteristic swollen condition of the eyes and face. I insist upon this factor as of the greatest importance, as its recognition will en-

able us to institute specific treatment early when the disease is yet local and may be brought more speedily under control. During the last five years I have had under my control upward of two hundred cases of whooping-cough. Of the majority of these cases I kept an indifferent clinical record, from which I deduce the results embodied in this paper. Pertussis, as we all know, is a notoriously unsatisfactory disease to manage, and if we put our whole confidence on a single remedy we are likely to meet with keen disappointment; thus the good reputation as well as the disgrace of a drug comes about. The drugs I have found most efficient in the catarrhal stage have been hydrogen peroxide in sterilizing the naso-pharynx, and assafœtida occasionally used for the paroxysms. Belladonna, also, is to a high degree beneficial in young children, and should be placed first. This I push until I get the full toxic effects, when I am generally rewarded with less of the suggestive characteristics of the cough.

To be more explicit, I will detail the methods of procedure in a family in which I have instituted my idea of thorough treatment. A child of four years attending kindergarten was brought to me with a suspicious cough. The history was given of an exposure of over two weeks prior. The child coughed for a few days, more at night, was feverish during the evenings, with slightly swollen eyelids, this suggesting the nature of the impending trouble. I ordered hydrogen peroxide and pure glycerin, equal parts; this was well diluted and thoroughly sprayed through the naso-pharynx every four hours. The diet was light and digestible; out-door life was encouraged, except on windy days. All excitement was avoided, so as not to precipitate any additional paroxysms. At night the child was placed in a large, well-ventilated room, and over its cot was erected a mosquito-netting, so as to prevent any unusual draught. This procedure I have found highly beneficial, as it materially lessens the number of the nocturnal paroxysms. When the cough was fully established and was accompanied by eructations of stringy mucus, I commenced the exhibition of mistura assafœtida, ½ drachm every two hours. The record of the paroxysmal stage was as follows: First week averaged six coughing spells per day; second week averaged ten spells per day; third week, four paroxysms; and fourth and fifth weeks averaged about two paroxysms during the twenty-four hours. When the younger brother, but eight weeks old, commenced to show evidence of the disease, I first used hydrogen peroxide, as in the older brother, and immediately followed it with assafœtida. This case continued scarcely four weeks, when all symptoms subsided. Mistura assafœtida, however, is ofttimes disappointing, even in younger children. My second choice would be tincture of belladonna exhibited in 1-drop dose for every month of the child's life, rapidly ascending doses until toxic effects are reached, after which gradually increasing the doses as tolerance of the drug seems to be established. In very young children I have obtained good results from the use of a freshly-prepared belladonna-plaster placed between the scapulæ. The physiological action of the drug seems to be more constantly maintained; this may be changed at the end of one week. In a number of very troublesome cases in young children I have gained decided advantage by an application of two-per-cent. cocaine solution directly applied to the naso-pharynx.

This treatment does not preclude the use of hydrogen peroxide, which is continued throughout the catarrhal stage. Bromoform was resorted to in fully twenty per cent. of my cases, and was a keen disappointment; it seemed merely to stupefy the patient and did not apparently shorten the progress of the disease. The coal-tar products pushed to toxic doses modified the cases but slightly. Belladonna and antipyrin in combination gave better results than either alone. Quinine, chloral, creosotum, and carbolic acid I found of but little practical use, owing largely to difficulty in administration. This brief outline of the drug treatment in whooping-cough has reference solely to the catarrhal and paroxysmal stages of the disease. As important adjuncts to the management of the disorder, careful hygiene must be enforced, diet of the simplest character, and a uniformly quiet life. Throughout the whole course of the disease out-door life, so far as possible, should be encouraged, and, if convenient, a sojourn at the sea-shore will shorten the progress of the trouble and limit to a great extent the number of sequelæ.

In conclusion, I wish to invite professional attention to *three* very important factors in the treatment of whooping-cough:

1. The early recognition of the disease before the spasmodic stage, suggested by puffiness under the eyes. Then hydrogen peroxide, or possibly cocaine, applied locally. In very young children the treatment is sometimes abortive.

2. The use of belladonna pushed to toxic effects in the second stage is very valuable.

3. Out-door life, sea-shore the best, if the foregoing are not effective.

TWO CASES OF TRAUMATIC CATARACT IN CHILDREN; EXTRACTION; SUCCESSFUL RESULTS.

By James Moores Ball, M.D.,
Professor of Ophthalmology and Otology in the St. Louis College of Physicians and Surgeons; Corresponding Member of the Medico-Legal Society of New York.

RECENTLY two cases of traumatic cataract occurring in children have been under my care. Both cases were kindly referred by Dr. W. E. H. Bondurant, of Downing, Mo.

Case I.—*Traumatic Cataract; Extraction of Lens; Successful Result.*—J. H., boy, aged nine, was struck in the eye by a needle, which pierced the cornea near its centre and entered the lens. Opacity of the lens developed gradually, the lens substance protruding through the puncture into the anterior chamber, forming a rounded mass with a well-defined pedicle. Four days before consulting me inflammation developed; the eye became hard and painful. A careful examination under atropine and oblique illumination showed the condition described above.

Here was a case in which the classical operation for traumatic cataract—viz., linear extraction—was evidently out of place. Much of the lens was not softened; nevertheless, the eye showed increased tension, and this, unless soon relieved, would destroy vision. Since it was evident that the greater portion of the lens could not be removed by the linear method, I immediately made an extraction, passing a Graefe knife at the apparent corneo-scleral junction and severing about two-fifths of the circumference of the cornea. The lens was then extracted through a natural pupil, the eye dressed antiseptically, and the dressing kept constantly moist with a solution of bichloride (1 to 3000). Healing followed rapidly, and at the end of sixteen days the boy's vision in the affected eye equalled $\frac{18}{20}$.

Case II.—*Traumatic Cataract; Extraction; Great Loss of Vitreous; Successful Result.*—A few weeks after the discharge of Case I. another boy, aged eleven, was brought to me with the statement that the thorn from some kind of a "creeper" had injured the eye a few weeks previously. Examination showed a congested conjunctiva, a faint corneal opacity marking the point of injury, dilated vessels in the pericorneal zone, the anterior chamber almost obliterated by the pressure of a swollen lens, and great increase of intraocular tension. The eye had been painful for three days. At the time of the accident and for several weeks following there was no pain.

This was a case for linear extraction, and yet I was sure that much of the lens was still unsoftened and could be removed by the linear operation with great difficulty, if at all. Consequently, I again used a Graefe knife, great care being taken lest the knife pierce the iris and cut out a section of that diaphragm. The section was made as in the previous case, with this difference, that the line of incision was about one millimetre in advance of that in Case I. The greater part of the lens was softened and followed the knife. I was gently pressing with the cataract-spoon opposite the incision and working out some fragments of cortical matter, when suddenly there was a gush of vitreous. Immediately the protruding vitreous was cut off with scissors, only to be followed by more and more vitreous. The speculum was removed, the lids gently but firmly closed, and an antiseptic dressing applied. It was feared that infection might take place, owing to the fact that a large bead of vitreous was necessarily left between the lips of the wound. The following morning the corneal wound was found to be closed, the anterior chamber restored, and the conjunctival cul-de-sac filled with floating beads of vitreous. The pressure had cut off the extra- from the intraocular vitreous. The case progressed favorably, and at the end of the fifteenth day the child's vision equalled $\frac{15}{20}$.

THE DYSPEPSIA OF STRUMOUS CHILDREN AND ITS TREATMENT.

Read before the Section of Medicine at the Annual Meeting of the British Medical Association, Bristol, 1894.

By W. Soltau Fenwick, M.D. (Lond.), M.R.C.P.,
Assistant Physician to the Evelina Hospital for Sick Children.

DR. T. J. TODD* was the first to describe the clinical features of a variety of dyspepsia which commonly occurs in strumous subjects, and his observations were fully confirmed shortly afterwards by Sir James Clark.† Of late years the complaint has attracted but little notice, and modern writers are content either to quote the opinions of the last-named observer or to dismiss the subject with the remark that dyspepsia is prone to attack scrofulous children. The complaint is encountered in a modified form in almost every child who presents the general features of the tubercular

* "Cyclopædia of Practical Medicine," art. "Indigestion," vol. ii. p. 649, 1833.

† "Pulmonary Consumption," p. 16, 1835.

diathesis, but it is rare for the disorder to prove so severe as to claim the exclusive attention of the medical practitioner. I find that among two thousand cases of disease in children which have come under my care during the past twelve months at the Evelina Hospital, thirty-two were brought to me solely on account of the disease in question, and it is from observations made on these cases that the following remarks have been compiled:

Sex and Age.—Girls appear to be more subject to the complaint than boys, for among my thirty-two cases no fewer than twenty-six were of the female sex. The disorder may exhibit itself at any time between the fourth and fourteenth year of life, but it is most common about the age of five.

Family History.—In the vast majority of the cases the patient exhibits a strong family tendency to tuberculosis. Thus, in twenty-two instances (sixty-six per cent.) it was found that one of the parents had suffered from phthisis, the father more often than the mother. As a rule, one or more members of the patient's family present evidences of the strumous diathesis. In twelve cases I found that one of the other children was the subject of enlarged cervical glands, or possessed scars or other signs of disease of the lymphatic system or the bones.

General Appearance.—The digestive disorder affects all varieties of the so-called scrofulous temperament, but the children who possess the finer and more delicate cast of features prove the most frequent sufferers. In addition to the general appearance indicative of the strumous diathesis, some local manifestation of scrofula is occasionally encountered. Chronic enlargement of the cervical or submaxillary glands was only noticed in two cases, but in three others typical scars were observed. Chronic inflammation with hypertrophy of the tonsils existed in ten, and phlyctenular ulcers of the cornea in five cases, but tubercular disease affecting the long bones or joints was never observed. Otorrhœa was present in six instances, and many of the children suffered from muco-purulent discharges from the vagina or nose, without any obvious disease being detected in these organs. Anæmia was invariably present, and the digestive derangement seldom underwent any decided improvement until the conjunctivæ and the mucous membranes began to regain their normal color.

Symptoms and Progress.—Pain in the abdomen constitutes one of the most constant and characteristic features of the disease. It is usually quite sudden in its onset, and is apt to occur at irregular intervals. As a rule, the attack occurs during the early part of the evening or night, but occasionally its advent is postponed until two or three o'clock in the morning. The majority of the cases also suffer from a recurrence of the pain during the course of the day, especially just before breakfast and about noon. In twenty-three, or about sixty-nine per cent., of my cases the ingestion of food was also followed by an attack, and the patient was often obliged to hurry off to the closet, owing to a sudden and urgent call to relieve the bowels.

The umbilical region is the part of the abdomen to which the pain is usually referred, though occasionally other districts are also affected. The symptom partakes of the nature of a twisting or cutting sensation, and it frequently appears to commence a little to the right and above the navel and to proceed transversely across the abdomen from left to right. Occasionally the hypogastrium is the chief seat of the suffering.

The pain may prove severe from the very commencement of the attack, but it generally grows more and more intense until a maximum is attained, after which it gradually declines. Sometimes the expulsion of a large quantity of gas, either by the mouth or the rectum, is followed by more immediate relief. The actual duration of the pain varies from five minutes to several hours. The nocturnal attacks are the most severe and endure the longest; but when the disease is undergoing cure their duration is much curtailed, and the attacks are eventually replaced by momentary twinges.

The affected region of the abdomen is sometimes slightly tender on pressure, but more commonly firm manipulation affords relief, and very often the child will spontaneously press both its fists or even the corner of a chair into the abdomen when the seizure occurs.

There are certain conditions which appear to favor or even excite an attack of this nature. Constipation is a frequent concomitant symptom of the disease, and it is usually noticeable that the pain is aggravated by the presence of an overloaded colon. When the attacks follow the meals, they occur quite irrespective of the quantity of the food nourishment which may have been taken, but warm liquids or spiced foods are more active in the production of the symptom than other varieties.

Exhaustion from want of food and physical and mental fatigue are all potent factors in the causation of the disease.

The condition of the appetite varies considerably. Occasionally the desire for food is insatiable, but more often the appetite is poor

and exceedingly capricious, and the child is apt to develop peculiar distastes for certain articles of food. Meat fat in general is particularly repugnant to many of these patients, and I found that no fewer than eighty-seven per cent. of my cases were unable to eat this substance without experiencing nausea, acidity, vomiting, or suffering from an attack of biliousness. This dislike is sometimes so intense that the mere sight of fat gives rise to a feeling of nausea. Bacon fat, on the contrary, is sometimes eaten with pleasure, and milk, cod-liver oil, and glycerin are easily tolerated. It is also noteworthy that thirty per cent. of the cases of this disorder disliked sugar in any form, and the mother usually stated that saccharine substances made them bilious. In a few instances it was stated that the child was extremely fond of bitter and sour materials, and especially lemons and vinegar.

Thirst usually constitutes a prominent feature of the disorder, and was present in sixty-three per cent. of the cases. The sensation is chiefly complained of at night, and the child will often get out of bed and search for water, and in one instance I was informed that the dirty contents of the hand-basin had been imbibed in the absence of clean water from the room.

Constipation was complained of in twenty-two, or sixty-seven per cent. of the entire number. In some cases the torpid action of the bowels had existed throughout life, but, as a rule, this symptom had only shown itself for the first time shortly before the onset of the pain. The stools are pale and fetid, and usually consist of a kind of putty- or mortar-like substance, but occasionally they are hard and knotty, or they present the appearance of slime. On careful examination of the evacuated material, large quantities of undigested food can be discovered, with a remarkable absence of bile pigment, appearances which appear to justify the frequent remark of the nurse to the effect that the food goes through the body unchanged.

In ten cases, or one-third of the entire number, the bowels were stated to be irregular in their action. In many of these it was a constant complaint that as soon as a few mouthfuls had been swallowed the child was attacked with pain in the abdomen and had to hurry off in order to pass a motion. This sequence of events ensued after every meal, and was a cause of great annoyance both to the patient herself and to her parents. The evacuations in these cases are usually semi-solid in character, and frequently give rise to a sensation of heat or scalding at the anus, or tenesmus accompanies the act of defecation. Occasionally the abdominal pain subsides without an evacuation of the bowels.

Under ordinary circumstances, nausea and vomiting are seldom complained of, and flatulence and acidity are equally rare.

Although there may be no actual loss of flesh, the child remains thin and anæmic and never seems to gain ground. The skin feels harsh and dry, but profuse perspiration is apt to occur suddenly during the night. The hands and feet are habitually cold and blue in color, and are liable to chilblains. Sleep is much disturbed by dreams, and the child often talks wildly, gesticulates, or grinds the teeth while it dozes. The urine is usually pale in color and may deposit a considerable quantity of phosphates. The tongue is generally clean and of a darker color than normal, but occasionally it appears to be veiled by a coating of thin white fur, through which the papillæ show themselves in the form of vivid red spots.

From time to time the symptoms are apt to be replaced by others arising from an attack of subacute gastritis. When this disorder supervenes, the child usually awakes in the morning with frontal headache and a foul taste in the mouth and complains of severe nausea. The appetite is in abeyance, but there is great thirst. The face appears pale and puffy and there are dark lines under the eyes. The breath smells sour, the dorsum of the tongue being thickly coated, while the tip and edges are bright red. Aphthæ may appear on the gums and palate. The pulse may be quickened and the temperature slightly raised, but the pyrexia is generally insignificant. Retching or vomiting follows every attempt to take food. There may be acidity and flatulence, and diarrhœa is the most common complication. In some cases, however, obstinate constipation is encountered. The quantity of urine is diminished and it deposits amorphous urates.

These catarrhal attacks are apt to occur every few weeks, and usually last four or five days. I have noticed that they are very liable to occur when dry and mild weather has succeeded a spell of dry northeast wind. In a few cases certain articles of diet have appeared to be responsible for the attack, and I have several times heard it stated that a little fat eaten was responsible for the biliousness.

After puberty the various symptoms usually subside, save for occasional attacks of gastric catarrh. In some instances, however, the disease undergoes a slow form of evolution, and the stomach rather than the intestine eventually becomes the seat of the disorder.

Etiology.—In the absence of post-mortem evidence it is only possible to offer a general surmise as to the origin of the complaint and its various symptoms. Todd considered that the dyspepsia was caused by a deficient secretion of the bile, whereby the processes of digestion and assimilation of food in the duodenum were permanently hindered. Although there can be no doubt that this explanation is partly correct, since the symptoms indicate a defective biliary secretion, there are reasons for believing that the liver is not alone at fault. The peculiar situation of the abdominal pain and its character suggest that this symptom arises from an irregular and spasmodic contraction of the colon, a supposition which is confirmed by the fact that in many cases the pain is immediately followed and relieved by an evacuation of the bowels. But, unlike ordinary cases of colic, the symptom does not seem to arise from ingestion of irritating material, nor does it depend entirely on an overloaded condition of the colon. On the contrary, it is most readily excited by such conditions as mental and physical exhaustion, which act through the central nervous system, or by a process of reflex irritation, as when food is introduced into an empty stomach. The sudden and violent peristalsis which is induced in these various ways tends to curtail the period of gastric as well as intestinal digestion, and to hurry the food through the bowel before it has had sufficient time to undergo the necessary digestive changes. It is well known that the tubercular diathesis is closely associated with various forms of neurosis, and it is not, therefore, unreasonable to suppose that the subjects of this disorder may occasionally exhibit an extreme irritability of the nervous mechanism of the digestive tract, which will show itself in the form of sudden and painful peristaltic waves. I am therefore inclined to regard the dyspepsia which is prone to attack strumous children as a neurosis of the digestive tract rather than as a functional disorder of the stomach.

Treatment.—The predisposition to tuberculosis exhibited by these patients requires special precautions with the view of maintaining the general health. The child must be warmly clad, and exposure to cold and damp always carefully avoided. Wool should always be worn next the skin, even at night, when a flannel suit should take the place of the usual night-dress. Tepid baths of salt water are always useful in maintaining a healthy action of the skin, and regular but not excessive exercise in the open air should be advised.

Sea air is particularly beneficial in the treatment of these cases, and a few months' residence at Margate, Ramsgate, or Dover, or some other health resort on the east or south-east coast, is often followed by marked improvement. The more relaxing atmosphere of the south of England, on the other hand, is seldom suitable for the subjects of this disorder, owing to the tendency to gastric catarrh, or biliousness, which the climate appears to evoke.

The selection of an appropriate dietary seldom presents any difficulty. All articles of food which contain a large percentage of indigestible material should be avoided; hence vegetables should be either avoided or given sparingly. White fish, chicken, and tender meat are to be preferred to the coarser and richer varieties, and all condiments and highly-spiced foods should be forbidden, on account of the excessive peristalsis which their ingestion is liable to evoke.

Milk and cocoa may be given freely, but coffee and strong tea must be prohibited. Alcohol is seldom desirable, and the constant resort to brandy as a means of relieving pain is strongly to be deprecated. When improvement has set in, a little bitter ale or stout at meal-times is often of service, but these beverages seldom agree in the early stages of the complaint. The meals should be taken at regular hours, and it is often wise to give bread and milk, tapioca, gruel, or other light food about half an hour before the child retires for the night.

The most prominent indication for medicinal treatment consists in the regulation of the bowels. Todd recommended small doses of gray powder for this purpose, followed by a mild course of hepatic stimulants, such as rhubarb, taraxacum, and nitrate of potassium. From my own experience I am inclined to regard these remedies as being chiefly of value when the tongue is thickly coated and nausea is a prominent symptom. As a rule, I have found the extract of cascara sagrada far the most reliable drug in the treatment of the constipation, and usually commence by the administration of 10 to 15 minims of the fluid extract along with a drachm of malt extract night and morning. Occasionally small doses of aloin and nux vomica answer well, or some simple laxative, such as senna and sulphur or the compound powder of licorice, may be employed with advantage. Drastic and saline purgatives had better be avoided, since the exhaustion which is apt to follow their administration increases the tendency to attacks of pain.

When the bowels are moved at each meal, sedatives should be employed to remove the extreme irritability of the intestine, and small doses of nepenthe, compound tincture of camphor, or a solution of morphine may be given in combination with carbonate of bismuth or aromatic sulphuric acid. In other cases the compound ipecacuanha powder may be substituted for the sedative draught.

As soon as the bowels have been brought into a satisfactory condition an attempt should be made to improve the quality of the blood, for as long as anæmia exists the disease is seldom amenable to treatment. The tartrate, carbonate, or ammonio-citrate of iron are to be preferred to other preparations, and occasionally the exhibition of the drug in the form of the compound iron mixture of the Pharmacopœia is attended with success. The medicine must be administered after meals, and a few drops of tincture of nux vomica may be added to it after a time, should the appetite remain poor.

Cod-liver oil is seldom of use in the early stages of the disorder, but as soon as the pain has subsided it may be cautiously employed and the dose gradually increased. If the crude oil produces nausea, the malt extract with cod-liver oil is often of extreme value.

When the symptoms of gastric catarrh present themselves in a child, it should remain in-doors and, if necessary, be confined to bed. The diet should consist entirely of milk, milk and soda-water, beef-tea, thin soup, bovril, or beef essence. Small doses of mercury with chalk may be administered every evening for two or three days, followed next morning by some saline purgative. At a later period an alkaline medicine with or without taraxacum or rhubarb may be given once or twice during the twenty-four hours. If the digestion remains feeble after the attack has passed off, the exhibition of the mineral acids is usually of service.

ON THE USE OF BELLADONNA IN ALLAYING IRRITATION AND HEALING CERTAIN SKIN-DISEASES.

A Paper read before the Section of Dermatology, Bristol, England, 1894.

By Eliza W. Dunbar, M.D. (Zurich).

BELLADONNA does not seem to have been much adopted as a specific remedy in skin-diseases. It does not take in this respect, either in general or special practice, a place like arsenic or sulphur. Authorities on therapeutics disregard for the most part any particular action of the drug in skin-eruptions, and such exceptional notices as may here and there be found touch on its anodyne properties or its being an assistant in securing the action of the intestines, and not at all on its being an agent by which reddening, thickening, and irritation may be subdued. Although bromide of potassium has its place in lists of well-authorized remedies in various skin-complaints, belladonna may be looked for in vain, either in the lists attached to a work so much up to date as "Martindale's Extra Pharmacopœia," or Squire's last edition of the "Companion to the British Pharmacopœia." Even Ringer, to whom Professor Lauder Brunton in his list of remedies attributes a recommendation of belladonna in skin-affections, gives it no place in his own lists of remedies for eczema, prurigo, pruritus, urticaria, or any kind of dermatitis.

The virtues of belladonna in the direction I have indicated became first known to me in the autumn of 1892, in the treatment of a case of dermatitis exfoliativa. The patient was a lady eighty-nine years old. The affection showed itself first in the face and neck, and spread all over the body, and was accompanied by intense and constant itching and by free and flaky desquamation. She had attacks of gout, and, among various remedies tried, a mixture of wine of colchicum and antimonial wine served to render the affection just bearable to the sufferer. Bromide of potassium failed to give any relief to the continuous irritation. Of external applications, starch powder was alone tolerated. As most remedies seemed to irritate rather than alleviate, my *locum tenens* kindly continued my treatment during my holiday absence, and did not change it until a day or two before my return, and not until, all parts of the skin having been invaded, there was none left to attack, and the process had declined everywhere in severity. I found the skin still very imperfectly healed, reddened and infiltrated, and there was much itching, though not quite so constant or severe.

The mixture of bark and arsenic that had been prescribed, and of which two or three doses had been taken, I directed to be continued, with the result that the whole process revived in all its original severity. Then, because belladonna was antagonistic to opium and because opium caused itching, I prescribed tincture of belladonna in 15-minim doses every six, eight, or twelve hours. Relief was almost immediate. The irritation was subdued, the skin began to heal, and in a few days the malady that had lasted nearly two months

had almost disappeared. Such slight relapses of itching as occurred were speedily allayed by the renewal of the remedy. This experience made clear to me what was the curative agent in a very obstinate case of prurigo, which had finally got well by taking a medicine for a cough, of bark, belladonna, and ammonia. I had strangely until then overlooked the belladonna, though I had found in giving bark alone that the prurigo had become worse, and I had returned to the first prescription in its entirety and with satisfactory result.

I have tested the influence of belladonna as occasion offered in such cases as exhibited irritation of the skin,—in all, thirty-five cases that I can remember,—and have found the drug curative or alleviating in thirty cases,—that is, about eighty-five per cent. With a larger number I could not hope for so large a percentage, but I should consider even fifty per cent. good.

It would be tedious to give details of every case, but I will give outlines of the more striking. The first was one of urticaria, recurring very frequently during several years. The affection is well described by the patient herself as red patches mottling the skin of the head and neck in the slighter attacks, and in the more severe form as white spots or wheals on a bright scarlet surface, the eruption of which is preceded by an intense irritation and feeling of fulness and oppression, with intense throbbing in head and neck, the immediate cause —still nearly in the patient's own words—being mental and emotional excitement, hot articles of food, pepper, curry, etc., hot baths, unusual bodily exertion, such as running, tennis-playing, walking up-hill. Half a drachm of tincture of belladonna daily so far relieved the symptoms that in a month a hot bath could be taken without inconvenience; sudden news of anxious import was heard without inducing an attack. After nearly two years' trial of the remedy the patient reported that, without being quite cured, belladonna had greatly diminished the tendency to the affection and had in this measure rendered life more enjoyable. It now requires much longer and harder exertion, much hotter dishes, and much longer use of a hot bath to bring on an attack.

Another case of urticaria in a young lady, showing itself as red spots round a minute, tingling white centre, was at once relieved by taking this drug, although other treatment had proved useless.

Finding it useful in healing a case of eczema due to too much contact with water, I have given it with good effect in other cases; for instance, in the case of a boy ten years old, who was covered with patches of eczema, the affection having lasted twenty-two weeks. External remedies had been avoided, but the irritation was great, preventing sleep. After four days of treatment, during which an ounce of belladonna tincture was used and boric ointment applied, a marked improvement had taken place. To test whether the external application or the belladonna was the healing agent, the latter was discontinued, with the result that the affection became worse, subsiding again on the resumption of internal treatment.

In the eczema of children the drug has seemed to me to be much more useful than arsenic in such cases as I have tried it.

Eczema of the scalp and neck in a woman aged sixty was at once improved and healed under the use of belladonna, and another case of ezcema, which had persisted on the lips for a whole year, healed by the same treatment.

Combined with tr. ferri chloridi, belladonna is successful in relieving pruritus pudendi, and in general pruritus, both in the young and in adults; a lotion of atropine sulphate, half a grain to the ounce, is for the localized affection of great use, even in cases of long standing. A very bad case of prurigo in a child, though it was not cured, was much relieved by belladonna. Of my five unsuccessful cases, one was a very old case of pruritus vulvæ and two of general pruritus, which, although not relieved by belladonna, were cured by potassium bromide. The other two unsuccessful cases were of erysipelatoid erythema of the face.

The dose should be in all cases moderate; restriction, not inhibition, of the activity of the sweat-glands, the possible constriction of the arterioles (an overdose dilates these), and a moderate anodyne effect on the sensory nerves should be aimed at.

Persons are very variously susceptible to the drug, and while some require as much as 60 minims in twenty-four hours to produce the desired effect, most require not more than 45, or even 30, minims daily. Persons who flush and get headache from the smallest doses will derive no benefit from the drug.

It is necessary, before registering a failure in any case, to ascertain that the preparation used is active. Once I found that a patient who had been progressing favorably ceased to improve, and inquiry showed that the prescription had been made up by a different chemist. The medicine obtained from a third reliable house, however, was promptly efficacious.

The good effects show themselves promptly if the dose is the right one, but nevertheless the remedy must be persistently continued until

cure is effected. I have never seen a case that was not promptly improved yield, however persistent the treatment.

INTRODUCTION TO A DISCUSSION ON THE MANAGEMENT OF ECZEMA.

READ BEFORE THE SECTION OF DERMATOLOGY AT THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION, BRISTOL, 1894.

BY MALCOLM MORRIS, F.R.C.S. (EDIN.),
Surgeon to the Skin Department, St. Mary's Hospital, and Lecturer on Dermatology in the Medical School.

[ABSTRACT.]

IN opening a discussion on this subject, Mr. Malcolm Morris said opinions still differed as to whether eczema were constitutional or local in origin. His own view was that, although a constitutional dyscrasia, such as gout, glycosuria, kidney-disease, rheumatism, or scrofula, might have a serious modifying influence on the local process, the *causa causans* was, in the majority of cases, the action of micro-organisms. He was also of opinion that seborrhœa often prepared the way for eczema by making the skin vulnerable by microbes. He thought, however, that Unna went too far when he taught that eczema was always and in all cases the result of microbic action. He (the speaker) had often seen the disease arise on perfectly healthy skin, apparently as the result of nervous disturbance. Even in these cases he thought it probable that the parasitic factor played a leading part in the process, the inhibition of trophic influence in certain parts of the skin creating weak points, through which microbic invasion could take place. The management of eczema must in every case be carefully adapted to the special indications present. Mr. Morris assumed that eczematous lesions should in all cases be cured as rapidly and as thoroughly as possible, without fear of the "depraved humors" "settling on" the lungs or other internal organs. Of the numerous cases he has treated, in not one has he seen the slightest ill effect follow the cure of eczematous lesions. He suggested the following points for special discussion:

1. Are internal remedies required in eczema? If they are, what are the precise indications which should guide us in the use of them?

2. The influence of diet in eczema.

3. What are the principles on which the local treatment of eczema should be carried out?

4. How is the tendency to recurrence of eczema in those predisposed to the disease to be overcome? Is there any plan of alterative treatment by which this result is brought about?

1. With regard to the first of these, Mr. Morris held that, as a general rule, the less internal medication there was in eczema the better. A constitutional dyscrasia underlying the skin-affection must of course be treated on the ordinary principles of medicine. In an ordinary chronic eczema, where there was no reason to suspect any dyscrasia, he trusted entirely to local treatment. Internal remedies should be given in accordance with definite indications. When the lesions were acutely inflammatory he found vinum antimoniale valuable, the indication for the drug being the presence of arterial tension, and depression being a positive contra-indication. If there were a neurotic element in the case, sedatives (opium or, if that disagreed, sulphonal, etc.) and nerve tonics (especially quinine and phosphorus) should be combined with local treatment. Arsenic was unreliable and, if given in inflammatory conditions, did harm instead of good. In like manner iron was contraindicated by acute inflammation. Malnutrition and amæmia should be treated on ordinary principles, and any source of peripheral irritation that could be discovered should, if possible, be removed.

2. With regard to diet, Mr. Morris believed that it had no influence at all except indirectly, by intensifying constitutional conditions, such as gout or glycosuria, or by disordering the digestion and causing vaso-motor disturbance. Apart from these indications, he had seen no reason to believe that restrictions had any good effect in eczema.

3. As regards local treatment, speaking generally, he treated every case as if it were of parasitic origin. He began with a very weak parasiticide and felt his way to the use of stronger applications, taking care not to set up any irritation. The best remedy for local use in dry chronic eczema, especially of seborrhœic origin, was, in his experience, sulphur, and next to that he placed resorcin. These drugs had the special advantage that they not only destroyed the micro-organisms on the surface, but caused exfoliation of the horny layer, and so brought away the microbes which had penetrated to the deeper parts of the epidermis. When the inflammation was acute, ichthyol was particularly useful. Other antiparasitic remedies useful in eczema were salicylic acid, white precipitate, boracic and carbolic acids. For very persistent chronic eczema of the flexures, chrysarobin was of service.

4. As regards the fourth point, change of climate, with complete rest of mind and body,

was often useful. The particular climate suitable in different cases was largely a matter of idiosyncrasy. Spas were beneficial chiefly in obstinate chronic cases. On the whole, the sulphur springs, especially those of Harrogate and Strathpeffer, were the best for external use. The internal use of sulphur waters was particularly indicated when gout or rheumatism underlay the skin-affection. Chalybeate and arsenical waters were useful in cases in which general tonics were indicated. The alkaline waters of Vichy and Ems did not seem to be of any particular use, even in gouty subjects. In many cases the waters of Bath did good.

THE TREATMENT OF CHRONIC HEART-DISEASE BY BATHS AND GYMNASTICS AS CARRIED OUT AT NAUHEIM.

READ IN THE SECTION OF MEDICINE, BRISTOL, 1894.

BY F. J. WETHERED, M.D., M.R.C.P.

[ABSTRACT.]

IN this country Nauheim is practically unknown, but the estimation in which it is held in Germany may be gauged by the fact that during the season no fewer than fifteen hundred baths daily are given. Dr. Wethered spoke of the treatment there applied to cases of chronic heart-disease, from actual observations made on the occasion of a recent visit to that watering-place. Through favor of Dr. Schott, he was able to investigate the effects of treatment in fifty cases, and besides obtaining their histories from their own mouths, had ample opportunities for observing their physical conditions during his stay at Nauheim.

The treatment both by baths and gymnastics, Dr. Schott assured him, could be very well carried out elsewhere, after the acquisition of a knowledge of the system. Nauheim is situated on the Taunus, and is arrived at by train from Frankfort-on-the-Main in about forty minutes. The season commences in May, lasting until the end of September.

The Baths.—There are twelve springs at Nauheim, but only four of them are used medicinally. Two are used exclusively for baths, the other two for drinking. Their curative effects were first mentioned by Beneke in 1859, and his observations were extended by the subsequent publication of a monograph in 1872. Others, such as Schott and Groedel, have also written on the same subject.

The chief mineral constituents of the waters are: sodium chloride, 2.8 per cent.; calcium chloride, two per cent.; and traces of iron, manganese, strontium, etc. There is also much carbonic acid, both free and in the combined state. In one spring there are no less than 889 cubic centimetres in 1000 grammes, and in another as much as 1066 cubic centimetres per 1000 grammes.

Use of the Baths.—They are used in the following order:

1. Warm brine baths, without carbonic acid.

1*a*. Warm brine baths, with mother liquor added from the neighboring salt-works.

2. Warm brine baths, with a little carbonic acid.

3. Brine baths, the water being allowed to run in during immersion.

4. Effervescing baths.

5. Effervescing running baths.

Bath No. 1 has a temperature of about 95° F., and is used in cases of great cardiac weakness, the immersion at the commencement lasting about eight minutes. A bath is given on each of three successive days, then suspended for a day, after which more baths are given in a similar manner. After a little while Bath 1*a* is substituted.

Bath 2 has a temperature of 89° to 92° F. The immersion lasts from ten to twenty minutes. At the commencement some oppression is felt at the epigastrium, but this passes off after a bath or so. On the healthy heart a reduction of pulse-rate is noted, its volume being markedly increased. In the case of a diseased heart the rate is also decreased, and irregularity, if present, disappears, the pulse improving in volume. The respiration is rendered slower and deeper, and there is great relief to the subjective symptoms. The improvement here mentioned lasts at first from one to three hours, the time increasing as the patient has been longer under treatment. As an instance of the effect, Dr. Wethered then gave brief notes of a case observed by himself.

The effervescing bath has a temperature between 88.3° and 91.4° F. Its effect on the pulse is more marked, but of the same character. The sense of oppression experienced during immersion is also greater, but no fatigue is felt afterwards.

In the case of the "stream baths" the pulse-rate is slightly raised, but at the same time the strength and volume of the wave is very markedly increased; this effect lasts for about three hours. Dr. Schott considers that the action of the baths is to be explained by supposing that a reflex action, starting in the superficial sensory nerves and passing through the vagus to the heart, is set up. This view has some sup-

port in the fact that on emerging from the bath the skin is quite red and hot.

The Gymnastics.—Although the systems devised by Oertel and by Zander are both well known here, they are but seldom employed. The actual methods made use of at Nauheim should be called "movements with resistance" rather than true gymnastics. These consist of extension, flexion, and rotation of the legs, arms, and trunk, against the carefully-applied resistance of a skilled attendant. Care is taken that no one exercise is repeated twice in succession, and the resistance is very carefully graduated according to indications afforded by the patient himself. Any sign of breathlessness is a signal for its immediate reduction.

Another form of gymnastics is the "self-resisting" movements, in which the action of one set of muscles is resisted by that of the opposite set of muscles in the same limb. Such exercises are either used independently or in combination with the bath treatment.

Effect.—The pulse becomes more regular, its volume increasing and its rate diminishing. Any increase in the pulse-rate during treatment indicates too rapid movements, which are then immediately slowed down. Another curious phenomenon is also seen as the result of the exercises,—the area of cardiac dulness becomes greatly diminished. After a course of such treatment, moderate hill-climbing may be recommended.

Dr. Schott also considers that the effect of the "gymnastics" is of a reflex nature.

As for the class of cases suitable for the Nauheim treatment, it may be said that all cases, save those of aneurism, or those with indications of advanced arterio-capillary fibrosis with high arterial tension, may expect to be benefited.

The patients whom Dr. Wethered found there stated that they never derived such great benefit from any other treatment or *régime*, and many of them returned on each successive season. In the severest cases the breathing was soon rendered easier, while ascites and œdema were often so far improved as to admit of carriage exercise or even moderate walking exercise. As to the cases which show the most marked improvement, these are instances of dilated heart, the result of structural alteration, and indications of a failing left ventricle. When there is much severe pain of a pseudo-anginal nature, this rapidly disappears in most instances, under the exercises alone. Cases of valvular disease also do well, if not too far advanced.

Since returning to London, Dr. Wethered has instituted a kind of artificial Bad-Nauheim at the Middlesex Hospital, and several patients who have undergone treatment under these conditions have already shown great improvement.

AN ADDRESS ON PYREXIA AND ITS TREATMENT.

DELIVERED IN THE SECTION OF MEDICINE AT THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION, BRISTOL, 1894.

BY W. HALE WHITE, M.D., F.R.C.P.,
Physician to Guy's Hospital.

[ABSTRACT.]

AN animal is said to be suffering from pyrexia when its temperature exceeds the limit of health. In man this limit is between 98° and 99° F., but its extent varies in different animals. In cold-blooded animals it is very great, and the evolution of warm-blooded from cold-blooded animals is to be attributed to the fact that the former are primarily aquatic, while the latter are primarily terrestrial.

Heat is produced for the most part in the muscles, and is under the control of the central nervous system. Experiments show that damage to the corpus striatum produces a great rise of temperature. Heat is lost by the skin and lungs, and the loss, too, is under the control of the central nervous system. Some have supposed that there is a regulatory mechanism which is constantly so adjusting the loss and production as to keep the temperature constant, and that the pyrexia which follows on damage to the cortex is due to interference with a thermotaxic mechanism situated there. Others regard this form of pyrexia as due to the fact that the cortex has thermogenetic functions as well as the corpus striatum. The high specific heat of animal tissues is of great help in maintaining the temperature constant. All these parts of the central nervous system may be influenced reflexly from the periphery and directly by the composition of the blood circulating through them, so that we have a central nervous temperature due to lesions of the cortex, the corpus striatum, the crura, pons, and cord, and a reflex pyrexia and a circulatory pyrexia.

We will now consider each of these clinically.

CENTRAL NERVOUS SYSTEM.

Cortex.—The author has collected fifty cases in which damage to the cortex in man had caused a rise of temperature, sometimes as high as 109° F., and when the cortex was damaged on one side only the temperature would be found to be highest in the opposite axilla. In men-

ingitis also perhaps the great height of the temperature was in part due to the irritation of the cortex. Many functional disorders in which the functions of the cortex were perverted showed pyrexia. Such were epilepsy, delirium tremens, and chorea, but the most important was hysteria. The chief characteristics of hysterical temperatures were the age, sex, and hysterical character of the subject, the fact that it is very erratic, that it may vary in different parts of the body at the same time, that pulse and respiration ratio to the temperature is often irregular, that other signs of fever are often absent, and that the action of antipyretics is often uncertain. Allied to these hysterical temperatures we have the so-called inexplicable pyrexia, which may continue for months, usually with a swinging temperature every day. The explanation of these is very doubtful.

Corpus Striatum.—Many instances of pyrexia due to damage of this were quoted, and it was pointed out that a rise of temperature could usually be detected in hemorrhage into the corpus striatum. In the first few hours there might be a fall due to shock, but soon it begins to rise, and attains its maximum—often as great as 105° F.—in four hours. Then for four days it gradually falls, and reaches normal on the fourth day. For the next four days it usually is subnormal, after which it is normal. Up to this time it is always higher in the axilla opposite to the lesion than in that of the same side.

Crus, Pons, and Cord.—Cases of temperature due to damage of these parts were given, and it was therefore concluded that damage of similar parts of the central nervous system, both clinically and experimentally, caused pyrexia. The importance of damage to the central nervous system as a cause of pyrexia was not recognized enough. Dr. Bryant had found that out of one hundred cases of hyperpyrexia, eleven were due to injury to the brain, three to cerebral hemorrhage, six to injury of the cord, and one to myelitis.

Reflex Pyrexia.—As an instance of this the following examples were quoted. Surgeons had shown that seventy-five per cent. of the cases of simple fracture had a slight rise of temperature after the accident. Pyrexia was well known to be associated with renal and biliary colic, and Dr. Bryant had recorded six cases of burns, in all of which there was hyperpyrexia, without any evidence, even post-mortem, of septicæmia. Possibly in many abscesses part of the pyrexia was due to the peripheral irritation of the abscess, for, other things being equal, the greater the tension of the abscess the higher the temperature.

Circulatory Pyrexia.—Many vegetable poisons would produce pyrexia, such as atropine, cocaine, and caffeine; also animal poisons, as bad meat, mussels, bad cheese, etc., tuberculin, pepsin, and albumoses, would cause pyrexia. The chemical products of excessive muscular exercise would sometimes produce pyrexia, as seen in fatigue fever. In the case of diphtheria and anthrax, two distinct toxines manufactured by the respective bacilli had been isolated, are pyrogenic, and another which produced the other symptoms, and no doubt in the case of all the specific fevers the pyrexia was due to the circulation in the blood of pyrogenic toxines.

Treatment.

Hyperpyrexia.—Although it may be open to discussion whether it is the hyperpyrexia which is harmful, or whether it is that the excessive temperature is merely indicative of some deeper-seated harmful process, the fact remains that the physician knows that if hyperpyrexia is present, the patient is in the very greatest danger. The only treatment possible is the prompt and thorough application of the cold bath. The water should be at a temperature of 75° F. The patient should be kept in till his rectal temperature has fallen to 101° F., which usually occurs in about ten minutes. The bath should be repeated whenever the temperature is obviously rising rapidly. The importance of this treatment is shown by the fact that among fifty-six cases of rheumatic hyperpyrexia, of seven not treated, all died; of three treated by antipyretic drugs, all died; but thirty-three of those treated by cold bath recovered.

Pyrexia.—We must remember that it has never been shown that ordinary pyrexia is usually harmful, and also that we are only treating a symptom, just the same as when antimony and aconite were given to reduce the pulse in fever we were only treating a symptom. Now, we believe such treatment to have been unwise, and when we bear in mind how little we know about the cause of fever, there is no *a priori* evidence that the treatment of pyrexia as such may not also be unwise. Such authorities as Cantani, indeed, look upon pyrexia as beneficial. He thinks that it aids phagocytosis and exerts a kind of sterilizing action in the body. Last year, too, at Newcastle, Professor Roy pointed out that pyrexia was one of the defensive mechanisms which we possess against the organisms of the specific fevers, and Sanarelli holds the same opinion. But even if pyrexia does no good, that is no reason why we

should treat it, for it may do neither good nor harm. The remedy may be worse than the disease. Then, too, the treatment of single symptoms is bad for the doctor. It gets him into bad habits, and therefore in the long run it is bad for the patient. Also the treatment of pyrexia gives a false sense of security, for we have seen that some of the specific micro-organisms manufacture two toxines,—one pyrogenous and the other inducing other symptoms. By treating the pyrexia we leave the other toxine free to do harm, although, because the temperature is lowered, we fancy that the patient is better. Then, too, the reduction of the temperature abolishes a very valuable help to diagnosis. Especially do we miss this in the cases of deep-seated abdominal suppuration or those of doubtful specific fevers. The reduction of pyrexia may, too, impair immunity, for we know that the conferring of immunity often entails pyrexia; and, lastly, it must be remembered that antipyrin, antifebrin, and phenacetin are in large doses severe poisons. As, therefore, it is doubtful whether the treatment of pyrexia as such is a good thing, we must examine those diseases in which the use of antipyretics undoubtedly does good. Such are ague, rheumatic fever, and typhoid. Now, in ague quinine does not act as an antipyretic, but as a direct poison to the plasmodium malariæ, and it is highly probable that in rheumatic fever salicylates also act as direct specific remedies. With regard to typhoid fever, there is no doubt that if large numbers of cases are taken, those treated by the external application of cold do better than those not so treated; but, on the other hand, this treatment is not required for all cases. It is not often required if the temperature is below 103° F. No fixed point should, however, be taken; each case must be judged on its own merits, and no physician should slavishly follow one method. What is a good treatment for one case is unsuitable treatment for another. A great point, however, to bear in mind is, that it has never been shown that this treatment acts for good solely because it reduces temperature. It does more than this; it calms delirium, quiets the tremor, lessens the prostration, and diminishes the liability to complications, and also it has been stated that during the treatment of typhoid by cold baths the elimination of toxines is enormously increased; therefore it is probable that the cold bath should not be looked upon as an antipyretic any more than as an antideliriant, but that it should be regarded as acting directly or indirectly upon the specific cause of typhoid fever. Dr. Hale White summed up by saying that hyperpyrexia must undoubtedly be treated by cold baths. The routine treatment of pyrexia is bad, and when the treatment appears to do good it is because the means employed attacks the cause of the disease, and the means is not acting as an antipyretic, or, at any rate, only in the sense in which mercury is the antipyretic of syphilitic fever. Antipyrin, antifebrin, and phenacetin should rarely be employed as antipyretics.

ON THE TREATMENT OF NEURASTHENIA.

READ BEFORE THE SECTION OF PSYCHOLOGY AT THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION, BRISTOL, 1894.

BY G. H. SAVAGE, M.D., F.R.C.P.,
Lecturer on Mental Diseases at Guy's Hospital.

[ABSTRACT.]

THE author stated his views as to the nature of neurasthenia, which had been defined as a nervous disorder in which there were weakness and irritability of the nervous system. The greater number of the patients suffering in this respect did not, however, become insane. Nervous weakness might be accepted as another name for the disorder, but he was unwilling to consider "brain fatigue" as a synonymous term. Omiting the theoretical and etiological portions of the discourse, the following were the hints offered by the author as to the proper treatment of the affection:

The first consideration is, that assertion rather than argument with a patient is always to be counselled. Let the physician lay down the regulations and then decline to discuss them. In laying down a plan of treatment, one of two courses is to be adopted,—either isolate the patient, so as to give complete rest, while means are applied for the re-establishment of the nervous system, or place him under firm, skilled companionship, and make him help to work out his own cure by indulgence in muscular exercise, etc. Of course every case must be made a matter for separate study, but in the author's opinion rest is the most important element of success, dieting coming second.

With regard to diet, in some cases it will be found desirable to reduce the daily allowance of meat and to treat the patient as if he were gouty. In others, however, a full, rich diet is indicated. In the case of teetotalers perhaps the best thing is to give a wineglassful of coca wine with a biscuit a short time before the time for sleep. In other cases a few grains of chloral, sal volatile, or paraldehyde may be necessary in order to secure sleep. The last

is, however, objected to on account of its disagreeable taste. In yet other cases a hot bath shortly before bedtime may prove efficacious. In all cases it is well to avoid the use of morphine, or, if this drug be used at all, it should be given without the knowledge of the patient, owing to the great risk of his acquiring the morphine habit.

Hypochondriasis is very liable to show itself in the neurasthenic, but the type is not of the usual and most objectionable kind, for these people have in general an unbounded faith in their doctor.

In concluding his paper, Dr. Savage presented an epitome of the rules for treatment advocated by Dr. Coles, the American neurologist, who considers that what we should aim at is as follows: Objective and subjective symptoms are to be treated, and the elimination of waste products is to be encouraged through the skin, kidneys, and bowels. This should be done by dieting rather than by purges. Hot-water draughts, mineral waters, hot enemata, abdominal massage, regular habits, and the use of fruit in abundance may all be advisable. Digestive pills of some sort may also be of service. Skimmed milk is one of the most innocent and efficacious means of stimulating the secretion of the kidneys. Many of the sufferers showing evidence of a gouty diathesis, salicylate of sodium should be borne in mind as an efficient means of encouraging the removal of uric acid. The action of the skin may be promoted by moderate exercise short of fatigue, hot bathing at night, or, in some cases, by an occasional Turkish bath. Although sea-bathing is of service in isolated instances, it is not to be advised, save with great circumspection, as in many instances it is apt to cause more harm than good.

With regard to the question of dieting, it should be one's aim to give a good solid diet, but this must be done gradually. Thus, to begin with, a full milk diet is to be ordered, and this is to be gradually supplemented with fish and, after a time, with the more digestible meats. Food should be cooked in the plainest manner possible. Ordinarily it is well to avoid the use of much meat essences, but cream, malt, and prepared foods may be given. Kumiss is one of his favorite food beverages, and digestion may be materially aided in some cases by the administration of small doses of sal volatile a short time after meals. It is, again, of great importance that food should be administered at regular intervals,—generally every four hours. Should the sufferer wake early in the morning, fluid food in some form should be at hand, and a glass of milk under these circumstances sometimes secures an addition to the hours of sleep. Exercise should not be too prolonged, and should be taken in cheerful companionship. Dr. Savage is a strong believer in the efficacy of golf under these conditions. In the slighter cases a sea-voyage in good company may often effect a complete cure.

As sleeplessness is a typical symptom in most cases of neurasthenia, it is well to know how best to combat it. Hypnotics are to be, as a rule, avoided, but the use of suitable food, stimulants, coca wine, and hot baths are, as already mentioned, of service.

After a hot bath, however, it is important to avoid all mental work, as its beneficial effects are easily overbalanced.

As for the use of electricity in one form or another, the author was not inclined to speak with enthusiasm, and he also regarded hypnotism with disfavor. Subcutaneous injections of serum had been said to yield good results at the hands of some French observers, but of this method of treatment he could not speak from personal experience.

THE EFFECT OF CREOSOTE ON THE VIRULENCE OF THE TUBERCLE-BACILLUS.

A Paper read before the Section of Medicine at the Annual Meeting of the British Medical Association, Bristol, 1894.

By W. Kington Fyffe, M.B., M.R.C.P.,

Medical Registrar, St. George's Hospital; Late Pathologist and Medical Registrar, Victoria Park Hospital for Diseases of the Chest.

[Abstract.]

In this paper an investigation was described upon the effect of creosote when administered (1) simply by inhalation, (2) by the mouth, (3) by means of a chamber filled with the fumes of creosote, in which patients were kept for an hour daily. The method adopted was to inoculate sputum into the legs of guinea-pigs before the patients were put under any treatment, and again at the end of a two months' course of creosote, and the results were compared by the length of time the pig lived in each case and by the condition of the tuberculous mischief in the pig when killed on the fifteenth day. In twelve cases in which patients simply inhaled the drug, though they were taking cod-liver oil and such like drugs in addition, creosote had no effect whatsoever. The lesions in the guinea-pig produced by the sputum before treatment were exactly equiva-

lent to those produced after two months' treatment by inhalations of creosote.

When given by the mouth, even in small doses (2 minims three times a day), there was a distinct effect on the animal injected; the primary inoculation before treatment killed the animal in twenty-one days. The second inoculation, after treatment had gone on for two months, killed the pig at the end of seven weeks. In the case of larger doses (6 minims *ter die*), the primary inoculation killed in twenty days, the second not for nine weeks.

The longest time that any pig lived was three months after inoculation with sputum from a patient who had been taking 10 minims of creosote for two months. Eleven cases in all showed that the larger the doses the longer the animals injected lived. It must be admitted, however, that no matter how large the dose (up to 12 minims three times daily), the pigs eventually died of tuberculosis; so that, though the power of the bacilli was rendered less, the organism was only weakened, not killed. With regard to those cases treated by the creosote chamber, only two were investigated. In both these inoculations at the end of two weeks' treatment did not kill guinea-pigs for fourteen to fifteen weeks. Though the number of cases is too small to draw any definite conclusion from, it is evident that the virulence of the bacillus was markedly affected, and that the animals lived longer than in any of the cases experimented upon. Further experiments were made on tuberculous guinea-pigs. Guinea-pigs were inoculated with tubercular sputum in one leg; into the other creosote was injected, with the result that though the pigs died from cellulitis set up by the creosote, generally about the sixteenth day, tubercle-bacilli were only found at the seat of inoculation, not elsewhere. A control animal killed on the sixteenth day had extensive tuberculosis of its viscera. If, however, the injections of creosote were not begun till fifteen days after the sputum had been injected, they had no effect whatsoever. Injections begun at the end of the first week kept the animal alive for a month.

The conclusions drawn from the experiments were as follows:

1. That creosote given simply by inhalation had no effect on the virulence of the bacilli.

2. That when creosote was given by the mouth, even in small doses, there was a definite effect, and when the dose was pushed there was an extremely marked diminution in virulence.

3. In the first series it was shown that the animals lived longer than in any of the other cases, but that it is impossible to dogmatize from so small a number.

4. Creosote injected under the skin in tuberculous guinea-pigs, provided that the disease was not too far advanced, had a markedly restraining effect on the ravages of the bacilli.

THE USE OF ELASTIC LIGATURES IN LAPAROTOMIES.

Following Professor Olshausen's suggestion, PROFESSOR DOHRU (*Centralblatt für Gynäkologie*, July, 1894) has employed the elastic ligature in about three hundred cases. He uses it in ovariotomies and myotomies, with either intra- or extraperitoneal pedicles.

The ligature is a solid, smooth, four-millimetres-thick strand, which is passed through a lead ring, and the ends being drawn tightly, are held in place by clamping the ring by means of forceps.

This ligature is recommended upon the following grounds:

1. The certainty of blood control. Owing to the strength of the rubber and the ease in securing it, one can apply it tighter than a silk ligature.

2. The ease with which it is rendered aseptic.

Despite the size and the presence of a non-absorbent foreign body in the abdominal cavity, no bad results have followed its use, the ligature being readily encapsulated.

ANTRUM ABSCESS.

HERZFELD, in *Langenbeck's Archiv* (*Centralblatt für Chirurgie*, July, 1894) cites four cases of abscess of the antrum of Highmore. Among other symptoms he mentions of diagnostic importance a circumscribed swelling on the septum near the point where this structure approaches the antrum, the mucous membrane of the septum being at this point raised from the bone. While the sounding of the normal opening into the maxillary sinus is often impossible, yet it is possible to break through the anterior wall with a sound or some sharp instrument at a point two-thirds to one centimetre above the lower edge of the middle turbinated bone. After opening, the sinus is washed out with antiseptic solutions, curetting of carious bones and granulations.

The Therapeutic Gazette

EDITED BY
H. A. HARE, M.D.,
GENERAL THERAPEUTICS.
AND
EDWARD MARTIN, M.D.,
SURGICAL AND GENITO-URINARY THERAPEUTICS.

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Leading Articles.

WHAT IS THE SAFE DOSE OF ANTIPYRIN?

WHENEVER a new drug is introduced to the attention of the profession, it goes through a period of experimentation in which even its proper dosage is a matter of doubt. Many of us will remember that when antipyrin was first introduced as an antipyretic, before we recognized its value as an analgesic, the doses generally administered averaged fully 15 or 20 grains. Since that time our increased experience of its action has shown us that much smaller doses are equally efficacious and in the opinion of the majority of the profession more safe. We have already in other editorial articles in the GAZETTE combated to a certain extent statements made by some practitioners that antipyrin is a powerful cardiac depressant, but we have admitted, on the other hand, that there is no doubt that in some cases its employment in very large doses is followed by circulatory depression, particularly in the presence of severe disease. Our attention has been particularly called to this subject by a case in which very large doses of the drug were administered in the treatment of epilepsy, and also by an article, which will be found in the Progress columns, by Bondurant, which appeared in the *American Journal of Insanity* for July, 1894. In the case of which we speak the heart-sounds were so exceedingly feeble that it was almost impossible to distinguish them, even after exercise. There was marked tendency to vasomotor relaxation and localized congestion, and there was also some cardiac palpitation. The pulse when the patient was quiet was feeble and irregular. Careful inquiry as to the medication which he had been taking elicited the fact that he had been in the habit of swallowing 50 grains of antipyrin three times a day for eight and a half months. He stated that his tissues bruised easily, small blows making large ecchymoses. He also stated that a well-known member of the profession had recommended these doses, and had declared that they were perfectly safe. In the article of Bondurant, which we have quoted, the average large dose which was administered for many weeks without danger, it is asserted, was from 45 to 75 grains a day, which is about half the amount we have named. Elsewhere we have called attention to the important fact that, after all, the dose of the drug is governed more by the susceptibility of the patient than by the actual number of grains which are administered, and it is also controlled, to a certain extent at least, by the effect which we desire to produce in the disease we are treating. The statistics which have so far been collected regarding the untoward effects of antipyrin indicate that in the majority of instances these untoward effects arose from doses of 10 or 15 grains almost as frequently as with massive quantities, showing, in other words, that susceptibility was a more powerful factor in the production of such symptoms than the actual number of grains. In view of this susceptibility and in view of the uncertainty which to a certain extent exists even at the present day as to the best moderate dose of antipyrin, we may conclude that 5 grains three times a day is quite sufficient as a beginning dose in the vast majority of cases, that in a fair proportion of instances even smaller quantities will be equally beneficial, and that it is exceedingly doubtful whether doses of more than 45 grains a day can be taken without danger to the patient's organism. This is particularly so in view of the fact that the production of chronic poisoning by such doses in the lower animals has been

shown to be followed by slow degenerative changes in the kidneys, liver, and spleen.

CONFIRMATORY WORK UPON THE ACTION OF CHLOROFORM.

THE readers of the THERAPEUTIC GAZETTE may recall the results of the study of the action of chloroform carried out under the request of the government of Hyderabad, India, which were published by Hare and Thornton in the October number of the GAZETTE, 1893. The most important contribution to the subject since that time is the article in the *Medical News* of August 25, 1894, by Drs. Randall and Cerna, of Galveston, Texas, who have not only reviewed the literature to a considerable extent, but have gone over the work performed in various investigations with considerable thoroughness. It is interesting and pleasant to note that the conclusions which they arrive at as a direct result of their experiments are practically identical with those which we published in October, 1893, by Hare and Thornton, and this is the more striking because they themselves state that they began their experiments quite convinced that death from chloroform occurred through primary cardiac paralysis, but that their experiments have told quite a different story, so that, to use their own words, "in not a single experiment did we see distinct cardiac failure preceding the stoppage of the respiratory function, and in only one case surely and in a second one probably there was noticed a simultaneous arrest of both respiration and the action of the heart." Their experiments were performed in the presence of a number of the faculty of the Medical Department of the University of Texas, all of whom believed that death from chloroform was due to cardiac failure, but were forced to admit that, in the experiments which they witnessed, a respiratory death took place.

The latter part of the paper of Randall and Cerna consists to a certain extent of a friendly criticism of the final conclusions of Hare and Thornton. It will be remembered that in the work of Hare and Thornton they recognized very distinctly that profound arterial depression associated with cardiac failure, even though death might be *physiologically* due to failure of respiration, was a dangerous and never-to-be-forgotten possibility, and they recommended that the respiration should be watched more than the circulation only, because they believed that the respiration would give the first indication of the dangerous action of chloroform. Randall and Cerna, while agreeing in this statement, insist more strenuously than did Hare and Thornton upon the anæsthetizer watching both functions, and we have no doubt that this advice is wise, unless practical experience shows that it is impossible for the anæsthetizer to watch the pulse and respiration and to handle the chloroform satisfactorily at the same time without diminishing his attention to any one of these important duties. It is a fact worthy of note that so competent investigators carrying on independent experiments in the far Southwest should have so entirely confirmed another series of experiments performed on the Atlantic coast under entirely different climatic conditions.

THE VALUE OF ARTIFICIAL RESPIRATION IN CEREBRAL COMPRESSION.

IN a communication published in the *Quarterly Medical Journal*, Horsley calls attention to the fact that in cases of cerebral compression, such as arise, for instance, from cerebral hemorrhage, tumor, or depressed fracture, as well as from sudden and violent concussion, especially when applied in the occipital region, death is due to failure of respiration. From experiments on animals he determined that a rise of pressure in the skull always causes slowing and diminution of the respiratory movements and later arrest of the same, and furthermore, after release and re-establishment of the pressure has been carried out once or twice, the respiration becomes periodic, exhibiting the characteristics of Cheyne-Stokes breathing, or simply becomes irregular in force and rhythm. These effects may be due both to direct pressure and secondary anæmia caused thereby.

The three common causes of increased intracranial tension—namely, tumor, hemorrhage, and inflammatory foci—exhibit in their clinical histories sudden death from arrest of respiration, this arrest being invariably fatal, unless the skull is immediately opened and pressure relieved. The truth of this statement Horsley shows by the recital of a number of cases. The most important practical application of Horsley's communication is the accentuation of the value of artificial respiration in cases of compression or of severe concussion. As the author states, when a man drops apparently dead from a blow in the occipital region, death is commonly attributed to heart-failure, and no effort is made to practise artificial respiration, though this is indicated quite as clearly as when death is threatened from drowning. The same holds true in regard to apparent sudden death from

bullet wounds of the cerebral hemispheres, it having been experimentally determined that, provided no interventricular hemorrhage is pressing directly on the respiratory centre, recovery by artificial respiration is possible.

Horsley sums up his communication with the statements that the respiratory centre is more sensitive to mechanical pressure and shocks than any of the lower vital nerve-centres, that where death threatens from intracranial pressure artificial respiration should be performed and the skull opened freely, and in cases of sudden shock artificial respiration should be instituted immediately, and heat should be applied to the head, preferably by irrigation.

The teachings conveyed in this communication are novel and in some respects directly opposed to the common practices advocated in this class of injuries. Thus, the application of hot irrigations to the skull in cases of severe head injury, for the purpose of relieving shock and stimulating the respiratory centre, is directly opposed to the popular practice in such cases. The value of the ice-cap, for instance, is firmly engrafted upon the mind of all hospital surgeons. Immediate trephining in all cases of compression greatly enlarges the field of usefulness of the emergency surgeon; and since it has been shown that life can be maintained by artificial respiration in these cases, he will not have before him the fear of death on the table, an accident which is by no means rare in brain surgery. To those who render first helps to the injured there is now given one more indication for the performance of artificial respiration.

TETANUS ANTITOXINE.

IN previous numbers of the THERAPEUTIC GAZETTE, both in the Editorial pages and the Progress columns, the interesting experiments of Tizzoni and Cattani in the preparation and practical application of the tetanus antitoxine have been fully detailed. It was stated that this method of treatment must still be considered in its experimental stage, since it has not yet been tried on a sufficient number of human beings to warrant any conclusion as to its efficiency. Each carefully reported case of its use is, however, of great importance, and Giusti and Bonaiuti have just added a new case, which to them is so convincing that they strongly advise the equipment of every railroad medical chest with a sufficient quantity of antitoxine, which should be immediately injected into all patients whose wounds have been contaminated with earth or dust, thus, as they claim, positively preventing subsequent development of lockjaw. The case in point has been reported with an attention to detail worthy of the most modern scientists.

The patient sustained a lacerated wound of the scalp and face, which was contaminated by earth. The right leg was also broken. The wound was immediately disinfected as thoroughly as possible with carbolic and bichloride solution and dressed with iodoform and carbolized gauze; this process of cleaning was again repeated in a few hours. Twenty-one days later twitchings were noticed about the seat of fracture. In twenty-four hours the symptoms had advanced so that there were tonic contractures of the arms, slight trismus, fixation of the head on extension, pain in the chest, nausea, and vomiting, increased by taking nourishment; shortly true tetanic convulsions developed. The ordinary treatment was continued for three days, the symptoms steadily growing worse. The pulse was running about 140 between paroxysms, and respirations were irregular; therefore, 40 cubic centimetres of serum from an immunized horse, representing a strength of 1 to 10,000,000, were injected; five hours later 20 cubic centimetres were injected. Following this second dose there was distinct amelioration of symptoms in one or two hours. The next day, the condition of the patient not being materially improved, 20 cubic centimetres of dog serum, representing a strength of 1 to 5,000,000, were injected. Seven hours later 10 more cubic centimetres were employed. The following day all his symptoms were very much better; nevertheless, 10 more cubic centimetres of blood-serum and 50 grammes of dried precipitate of horse serum were injected. Following this treatment by some hours violent convulsions were noted. These subsided, and thereafter the convalescence was practically uninterrupted. During convalescence several injections of antitoxine were made.

In considering this case it should be noted that the period of incubation was long,—*i.e.*, twenty-one days,—and even when the disease developed it could scarcely be called fulminant in type; hence it belongs to the class of cases in which under any treatment the prognosis is relatively good. It would appear, then, that the benefit of the antitoxines in this individual case is by no means proved, and that convalescence might have taken place had they been withheld.

It will require many such cases to prove the value of the antitoxine. On the contrary, one

or two instances of tetanus becoming manifest within a few hours or one or two days of the time of wound infliction, and reaching its full development within the day, yet disappearing after injections of antitoxine, will be enough to conclusively prove its value, since under all known treatments the mortality in such cases is almost absolute. Until further proof is adduced, then, the proposition of Giusti and Bonaiuti to make prophylactic injections of immunized serum in every case of earth-infected wound will probably not meet with any very great favor.

Reports on Therapeutic Progress.

ON THE DISINFECTION OF SCARLET FEVER PATIENTS BEFORE THE COMPLETION OF DESQUAMATION.

GIBSON writes on this subject in the *Practitioner* for July, 1894. He believes it to be the received opinion in regard to scarlet fever that until desquamation ceases contagion is still present. From the long period this process occupies in many cases, and the inconvenience and irksome toil and trouble therefrom arising to families in private practice, the author was led to investigate the correctness of the common opinion, and to ascertain whether or not sufferers from this disease might not by some method of cleansing or disinfecting be freed from the contagion before the process of desquamation was completed. In every case he has found the means used successful.

The method adopted is simple enough. It is to give a succession of three or four (generally not more than three) comfortably warm baths, sometimes daily, at other times on alternate days, using freely carbolic acid soap, and washing the patient most thoroughly from top to toe. After each bath, except the last, the patient was put back to the bed on which he had lain with the disease; after the last he was taken from the bath into a clean room, there dressed with clothes free from infection, and then allowed to mix with the rest of the family. Any patient with a complication, such as otitis or ulcerated or suppurating throat, was not subjected to the process.

The first case in which he tried the experiment was that of his own son, who had caught the disease at school, about eighteen years ago. The case was of the ordinary kind, but for ten days the fever ran high and the eruption was copious. He was isolated with every practicable precaution in his father's house. All the other members of the household remained at home. About the end of the third week he was fairly well, and was then subjected to the process of cleansing or disinfecting described, and after the third bath was allowed to mix with the other members of the household, consisting of eleven individuals, six of whom were children, and none of whom had ever had the disease. The result was that not one took it. In his case desquamation went on for three weeks after he was allowed to associate with the others. Since then the writer has frequently made similar experiments, and with like results.

The circumstances in different cases varied, in so far that in some the other children of the family in which the disease had broken out were removed, and were brought back as soon as the infected member and the house were cleansed and disinfected. In other cases where the house was large enough, and where isolation could be fairly well maintained, the other children remained. In some other instances, again, the infected member was removed and brought back to mix with the others as soon as he was cleansed or disinfected.

In none of the cases experimented on was desquamation over when the disinfecting process was applied, and the writer had an opportunity of observing its continuance in a number of cases after disinfection had been effected. In several cases desquamation went on for weeks afterwards. Whatever, therefore, be the connection between desquamation and the infectious micro-organism, the union is not so intimate but that the latter may be destroyed or rendered innocuous by a simple process of cleansing after the second or third week of the disease. Desquamation may then be allowed to continue its course to its natural termination without risk of spreading the disease.

In no case did any complication follow the cleansing process; indeed, in all the cases convalescence seemed to me to be rather hastened than retarded. In all the cases every effort was made to keep the patients in bed until disinfection was accomplished. In most cases anointing the body twice daily with olive oil mixed with some disinfectant was employed. The length of the period from the commencement of the disease until the disinfecting process was begun varied slightly, according to the health of the patient. In some cases it was begun immediately after the second week; in others it came at the end of the third week.

The use of the bath as a means of treatment in scarlet fever has been recommended and practised often enough; but it has not been

stated, at least to the writer's knowledge, that the application of bathing with a disinfectant might destroy the contagious principle or render it innocuous at such an early period of the disease as between the second and third week, and before desquamation was completed, or that after the application of it in the manner described patients might be at liberty, even though the process of desquamation was still progressing, to mix with the healthy without risk of spreading the disease.

Should this simple process of cleansing or disinfecting scarlet fever patients so early in the course of the disease, or as soon as convalescence is established, prove generally successful, the advantage to private families would be very great. The maintenance of isolation and other prophylactic means in private houses for four to six weeks, when the patient to all appearance is fairly well, is often effected only at great inconvenience, and is a trying hardship to patient and relatives. If the period could with safety be reduced to two or three weeks without risk of communicating the disease, even though desquamation was going on, the relief to all concerned would be correspondingly great.

CHLORALOSE.

FLEMMING, in the *Practitioner* for July, 1894, thinks that we may expect benefit from chloralose in all forms of functional sleeplessness, in the insomnia of psychical excitement, of hysteria, of neurasthenia and overwork, of functional cardiac irritability, and in attacks of epilepsy and somnambulism.

Secondarily, its use may enable us to separate objective from subjective pain, and so help, for instance, in the differential diagnosis of some forms of hysteria.

Chloralose will avail nothing in the insomnia of alcoholic excitement, multiple neuritis, or cerebral hemorrhage, or the sleeplessness due to any painful organic lesion or peripheral irritation.

In the insomnia of lunatics, where there is depression, it is said to be useful if given in large doses.

In the early stages of Bright's disease, chloral hydrate, owing to its effect on the blood-pressure, is probably more efficient.

The author has tried to mark plainly the limits to the use of this hypnotic, to save it, if possible, from the worst curse of a new drug,—that of becoming a fashionable favorite, and, like other fashionable favorites, having to heal all things and all men, with a success that is more commercially profitable than therapeutically useful.

We probably have in chloralose a practically pure hypnotic,—that is, a drug of which the dose that is sufficient to produce sleep affects the psychical element directly and solely.

THE DECOMPOSITION PRODUCTS IN CHLOROFORM.

LOVE, in the *Australian Medical Gazette* for June 15, 1894, after a useful article with the above title, states that we should always keep the chloroform in a cool cupboard and protected from the action of light. Keep the bottle well corked and as full as possible, and never use chloroform obtained from a druggist's, where it is often left exposed to light or heat in ignorance as to the consequences.

TROCHES.

CATHELL recommends the following troches in the *Maryland Medical Journal* of August 18, 1894. Of course a thousand and one combinations could be made, but for every-day cases the author has devised the following varieties, and finds them to admirably cover the ground in ordinary practice:

MUCO-STIMULANT.

Apomorphine, gr. $\frac{1}{30}$;
Solid ext. eucalyptus, gr. $\frac{1}{8}$.

MUCO-SEDATIVE.

Ext. pulsatilla, gr. $\frac{1}{12}$;
Ergotin, gr. $\frac{1}{16}$;
Codeina sulph., gr. $\frac{1}{24}$;
Ext. bellad., gr. $\frac{1}{48}$.

MUCO-TONIC.

Kalii chlor., gr. i;
Cubeb,
Resin,
Pulv. ipecac,
Catechu,
Balsam Tolu, of each, gr. $\frac{2}{3}$;
Capsici, gr. $\frac{1}{30}$.

Muco-Stimulant.—The action of these is astringent, stimulant, and antiseptic, and most marked upon the mucous surface, preventing the formation of a thick, tenacious mucus. The writer has, moreover, found them of special advantage in obstinate coughs by promoting marked expectoration and mollifying many bronchial and laryngeal troubles. Again, while they possess valuable stimulating properties, they are free from the extremely bitter taste that characterizes many of the other

troches; in this respect they strongly contrast with catechu, kino, etc., which greatly favors their administration to children and fastidious patients.

Muco-Sedative.—This troche sheathes and produces a soothing, calmative effect, lessening the tendency to cough and relieving throat soreness. They have been of marked benefit where the throat and tonsils are acutely inflamed and much swollen. They quickly mitigate irritation, liquefy tenacious mucus and lessen expectoration, and do not constipate. If a patient's cough is severe and irritating, two or three may be allowed in succession. He has used them in the early stages of mercurial salivation with wonderful benefit.

Muco-Tonic.—In regard to this troche it may be said with emphasis that no other combination has so many points of merit and is so effective in its action.

The writer has recently added to the original formula a small quantity of capsicum, and finds that the slight glow it produces increases their usefulness. And now, after an extended use of this combination, he finds its value both increased and confirmed. They are admirably adapted for allaying slight irritation of the throat and giving tone and flexibility to the vocal organs.

CHLORIDE OF ETHYL AND COCAINE IN MINOR SURGERY.

In the *Australian Medical Gazette* for June 15, 1894, PURSER has tried chloride of ethyl for the avulsion of a toe nail, and it acts splendidly. On many occasions he has seen it used for this with good results, also for cutting down upon needles in the hand and foot when they could be felt, for the removal of small cysts, etc. On two occasions he used it for opening an empyema, with good effect. In neither case was the pus stinking, and both recovered by being treated antiseptically and never being washed out. In both these cases the space between the ribs was ample to admit a good-sized drainage-tube, so that it was not necessary to resect a piece of rib; still, the author believes, had such been necessary, it would have acted just as well. He was first induced to try chloride of ethyl in a lad of fifteen or sixteen years of age. The patient was in a very debilitated condition, and was very nervous about the taking of chloroform, so much so that when the anæsthetist went to the ward to administer it, he was in such a hypersensitive condition that it was not deemed advisable to give it; and it being absolutely necessary to remove the pus by drainage, the chloride of ethyl was resorted to, with the result mentioned. The other case was that of a man who had a broncho-pneumonia and pleurisy followed by empyema, and he was so enfeebled that he was not considered a fit subject for chloroform or ether. Very little of the drug has to be used, a minute or two sufficing to freeze the part sufficiently. It can be easily applied, and, provided everything is ready for the operation and no delay, the patient will feel nothing. It must be remembered, however, that afterwards, during the thawing of the part, so to speak, the pain felt by the patient may be very acute.

SUCCESSFUL FOOD FOR INFANTS.

This preparation is so simple that any one—even an ordinary housemaid—with fair habits of carefulness can make it with ease and certainty. It is prepared thus:

Mix a full teaspoonful of flour and half a cup of cold water; to this add twelve ounces of boiling water and boil for ten minutes in a double boiler. Remove the inner vessel and add to the mixture another twelve ounces of cold water and half a teaspoonful of maltine. Allow it to stand for fifteen minutes in order to let the diastase act upon the starch. Replace the vessel in the boiling water and boil again for fifteen minutes. This mixture, after being strained, should be added to an equal quantity of fresh milk. Naturally, one may change the proportion of milk according to individual cases.

Of ninety cases, seventy-seven were babies between the ages of three weeks and fourteen months. All of them were suffering with characteristic disorders of malnutrition or malassimilation, such as gastritis, enteritis, or both, "idiopathic atrophy," diseases of the skin traceable to visceral lesions, and one case of congested and enlarged liver of five weeks' duration, which became well with no additional treatment than dietary. Of these seventy-seven, sixty-three improved immediately and continued to thrive; thirteen required additional treatment; and one, although fed carefully, showed no improvement. This last child was tried on a wet-nurse and three other foods successively before the proper nourishment was found.

The other thirteen cases were children over fourteen months and under twenty-six months of age. They were suffering from various diseases associated with malassimilation caused by or coincident with the primary disease. All of

them within varying spaces of time took kindly to this food and thrived on it.—OPPENHEIM, in the *New York Medical Journal* for July 21, 1894.

SCOPOLAMINE.

HARVEY SMITH writes of the value of scopolamine in the *New York Medical Journal* of July 21, 1894. He says that had it been possible to compare the action of other mydriatics on patients upon whom the scopolamine had been tried, the deductions might have been more absolutely reliable; still, the writer thinks the observations so far made justify us in coming to the following conclusions:

1. That the toxic effect of scopolamine used in one-tenth- and one-fifth-per-cent. solutions is easily produced, but can readily be avoided if the lids be everted or the nasal ducts compressed at the time of instillation.

2. That in diseased conditions of the eye, scopolamine is quite as useful a drug as atropine.

3. That in refraction work complete and thorough paralysis of accommodation with the maximum of mydriasis can be produced in from twenty minutes to half an hour, where the drug is used *coup sur coup*, and that the duration of its effect is from five to eight days.

4. That its greatest value lies in the rapidity of its action, which renders it specially useful for purposes of examination in refraction cases and in diseased conditions of the interior of the eye.

THE ANTIPYRETIC TREATMENT OF ACUTE DISEASE.

In the *Practitioner* for July, 1894, RAVEN writes on this topic. He thinks it is not among well-meaning amateurs only that the mania for indiscriminate antipyresis prevails. There seems to be a school, consisting chiefly of very young men, who look upon a rise of temperature as a bad thing *per se*,—as a symptom that must, so far as possible, be put a stop to at once and regardless of any useful purpose that it may serve in the process of a febrile attack,—who, in the presence of pyrexia, resort to antipyretic drugs, to ice, or to cold packs or spongings as naturally as a duck takes to cold water. They would appear to ignore the possibility that a high temperature may be the index of the resistance of the organism to an invading poison, or they would scarcely wish to stop such a beneficent agency. From such practitioners a remark like the following may commonly be heard: "I found the patient with a temperature of 102° F., so I gave him a dose of antipyrin." With an antipyretic at hand, even diagnosis becomes superfluous.

To exemplify the possible consequences of this kind of practice, take the following case: A child is presented who has a headache, aching limbs, and a high temperature. Nothing sufficiently definite is seen upon which to found a diagnosis, but the presence of the temperature justifies, in the doctor's opinion, the administration of antipyrin or antifebrin, or one of the numerous drugs of the kind that we have at our disposal. In twelve hours' time a white patch has appeared on the child's pharynx, and then resolves itself into one of membranous tonsillitis. Supposing that a depression of temperature has been effected, has it served any useful purpose? Is it not much more probable that it has been harmful? For, tracing the course of such cases, is it not found that a high initial temperature is generally followed by an early crisis and rapid recovery; whereas a much more serious and prolonged, or perhaps fatal, illness is likely to ensue when there is a subfebrile or even a subnormal temperature? It may be inferred that, so far from any beneficial result having been obtained by the dose of antipyrin, the effect has been merely an imitation—fortunately, a weak imitation—of the favorable type of the disease, and possibly an interference with the forces of the system to resist the attack. Again, take measles. Suppose that antipyretic drugs should be given during the period of pyrexia, could any doubt be entertained that the effect might be most prejudicial to the patient? Is not measles, with a sharp temperature accompanying a well-established rash, much more favorable in its immediate and remoter results than measles when the fever is slight and the symptoms but imperfectly developed? Cold bathing was once practised on a large scale during an epidemic of measles; it happened in Fiji. The natives, being attacked, flew into a state of panic and rushed into the sea; the mortality was enormous.

If, then, it be objectionable to treat tonsillitis and measles with antipyretics, the same may hold good with regard to many other acute diseases. These may appear fanciful instances to bring forward, but they are really not so. The young men who, in the author's personal experience, have been addicted to this process of reducing, or attempting to reduce, high temperatures whenever they have been met with, can hardly have excogitated the routine from their own inner consciousness. They must have

been trained somewhere. Undoubtedly we are at bottom empirics, willing to adopt any line of treatment that has been conclusively shown to be useful, though it should be unsupported by, or even opposed to, theory. Thus, no one will question the extreme value of salicylic acid in reducing the pyrexia, relieving the symptoms, and cutting short the progress of acute rheumatism. We do not know whether the salicylates have a direct action on the *materies morbi*, or whether the control of temperature is primarily their beneficial action; but we are content to employ the drug, thankful to have it at our command, and willing to wait until its action can be explained by some philosopher in the future. Again, experience teaches us that the action of quinine in ague is specific, whether in virtue of its antipyretic powers or of some other inherent properties, we do not know. Also in enteric fever, when the pyrexia is dangerously acute, or when it is unduly prolonged, the facts are sufficient to tell us that in antipyresis lies the safety of the patient.

But when an empirical procedure is less satisfactorily supported by facts, theoretical considerations should be allowed their due weight. Of all febrile diseases in which an antipyretic routine has theoretically no place, and practically a very uncertain and unproved one, pneumonia stands prominently forward. Acute pneumonia is defined as a specific fever, running a sharp and short course, characterized earlier or later in its progress by inflammation of more or less lung-tissue and by the presence of a bacterium—Fraenkel's diplococcus—supposed by many to be the *fons et origo mali*. It is believed that the presence of this microbe is the source of the fever and that the febrile action is in itself beneficial,—an agency by which the intruding germs are destroyed by the healthy cells of the body. The lung-substance appears to be the field upon which this battle between the invaders and the defenders is fought out. Pyrexia, then, is the natural result, the degree of which, within due limits, measures the resistance of the organism to the danger by which it is menaced. To attempt the reduction of temperature under such conditions, unless exceptional symptoms declare themselves, appears to be equivalent to ranging one's self on the side of the enemy, instead of joining in the defence. No doubt circumstances may arise under which antipyretic measures may be urgently demanded, as in hyperpyrexia, when the threatened ruin of the cardiac fibre presents an imminent danger, and in those cases when the pyrexia persists beyond the natural term of the disease the employment of antipyresis may be reasonably considered. As yet no case has been made out for the use of antipyretic measures in ordinary cases of acute pneumonia. Some years ago the writer made a trial of aconite, and for a long time treated every case of acute pneumonia with this: 1 drop of the tincture was given every ten minutes for an hour, and then the same dose was given every hour for four and twenty hours. By this means he succeeded in controlling the temperature, but failed to observe any control of the disease. The application of ice-bags to the chest-wall over the site of the inflamed lung or portion of lung in acute pneumonia is strongly condemned. It is to be assumed that this practice has for its object the direct arrest of the inflammatory process going on in the lung. Now, before considering whether this design is a reasonable or a scientific one, what proof exists that a bag of ice placed in such a position that skin, subcutaneous tissue, bones, muscle, and two surfaces of pleura intervene between it and the lung,—what proof is there that the condition of the lung-substance can be altered by such a procedure? Is it not just as likely that, so far from the blood being diverted from the lung, it is driven into it by the influence of the ice on the surface? And if any advantage should be gained from such applications of ice, would it be certain that this resulted from artificial anæmia of the lung and not from a more copious blood-supply?

But, assuming for the sake of argument that the substance of the lung in acute pneumonia can by this means be subjected to a cooling and depletory process, what would be the beneficial influence over the course of the disease? Would such an effect upon the lung control the pyrexia? The answer to this question would appear to be in the negative, for the pyrexia of acute pneumonia, as has been clearly demonstrated, is not primarily nor mainly dependent upon the local inflammation. The conclusive arguments on this head can be briefly enumerated: 1. The pyrexia is as well marked and often at its highest before—and often long before—any inflammation of the lung exists. 2. Upon the disappearance of the fever, which is often quite sudden, no change is to be traced in the physical condition of the lung. 3. The intensity of the temperature is in no way commensurate with the amount of lung-tissue involved in inflammatory changes; on the contrary, a small area of inflamed lung is attended, as a rule, by a higher temperature than when a whole lobe is consolidated. The reasonable deduction, then, would appear to be that, far

from the inflammation of the lung in acute pneumonia being the cause of the illness, it is, in a manner, analogous to the rashes of the exanthemata, the channel through which the virus is eliminated, or the scene where the invading germs are killed by the defending cells of the organism. In this salutary process there must be inflammation, and woe betide the victims of acute pneumonia who, from old age, intemperance, starvation, or any other source of debility, are unable to offer a good inflammatory resistance to the attack of the malady. Mr. Frederick Treves, in his admirable Lettsomian lectures on peritonitis, puts the following proposition, startling enough to any one, but doubly, trebly startling to the antipyretist: "It may be assumed," says Mr. Treves, "that within a month or so from the disappearance of inflammation from the business of the body, the human race would become extinct." The beneficial effect, then, of subduing inflammation of the lung in acute pneumonia by means of ice-bags, even supposing it possible, appears to be problematical. One thing, however, is not problematical, but certain, and that is, that if ice applied in this way is useful, then the employment of hot poultices must be injurious. You cannot blow hot and cold in this matter. The writer is not prepared to admit that the employment of hot applications for the relief of pain in these cases has any bad effect, and so far, upon the evidence, he is not inclined to relinquish it. It is to be noticed that the preponderance of opinion is that the effect that ice-bags so employed may produce must be attributed to the general lowering of temperature rather than to any impression exercised on the lung itself; and as the general antipyretic treatment of acute pneumonia finds but few supporters, there appears to be no inducement to adopt this ice method on any grounds. Of course there are excellent statistics to support it. All new methods of treatment, however quickly they are exploded, present most encouraging figures. In this matter, however, the statistics are vitiated by the avowal that this line of treatment is not adapted for weakly constitutions. Give any man a series of cases of acute pneumonia occurring in otherwise healthy and strong subjects, and he will show most favorable figures from treatment with peppermint-water.

What the writer has endeavored to convey is not so much objection to antipyresis as to indiscriminate antipyresis; that process of reducing high temperatures, often prior to diagnosis, regardless of their import and their possible utility; of treating a single symptom instead of regarding its source,—a practice which appears to savor rather of the unspeakable methods of the homœopath than of the science of the physician.

TREATMENT OF DELIRIUM TREMENS.

In the *New York Medical Journal* for July 21, 1894, BELLAMY concludes an article as follows:

1. Delirium was controlled with greater rapidity and safety by trional than by other hypnotics.

2. In the majority of cases a marked stimulant effect was observed, possibly on account of the methylic and ethylic elements which enter into the composition of the drug.

3. On account of the low temperature noted in all cases, trional must possess antipyretic properties, thereby simulating its allies of the phenol group.

4. It was always well borne by the stomach, and in one case was rapidly absorbed when administered per rectum.

5. No unpleasant after-effects were observed, and in all cases recovery was speedy, with the exception of two.

TREATMENT OF PUERPERAL SEPTICÆMIA.

MADDEN writes for the *Medical Press and Circular* of June 27, 1894, on this subject.

The prophylaxis of puerperal septicæmia largely depends on the sanitation and maintenance of the constitutional condition of our obstetric clients by judicious hygienic and dietetic measures maintained by ferruginous tonics throughout the latter months of pregnancy; secondly, the vital importance of asepsis in everything relating to the patient, her surroundings and her attendants during delivery, and the puerperium cannot be too strongly insisted on. At an early period during labor, and again before its termination, if protracted, as well as after delivery, the vagina should be washed out by warm antiseptic irrigation with either carbolic (1 in 40), boric acid (1 in 25), or lysol (1 in 100) solution. The 1 in 2000 bichloride of mercury solution recommended by some authorities, although a potent germicide, is an unsafe uterine application after delivery, and is here mentioned only to be condemned for that purpose. But for the cleansing of the external genitalia during or after labor, a 1 in 1000 solution of this salt may be employed by means of wood-wool pads, which

should be destroyed immediately after use. The routine practice of merely dipping the hands in an antiseptic solution before touching the lying-in woman is only valuable as an adjunct to absolute cleanliness, and without the latter, as too often employed, utterly delusive as a safeguard against sepsis, and therefore far worse than useless. Such obstetric manual cleanliness as is essential before any vaginal examination or contact with the lying-in or puerperal patient can only be secured by diligent hand-scrubbing with clean hot water and soap, by means of the nail-brush, after which, and not before, the hand may and should be immersed in the antiseptic solution prior to touching the patient.

Thirdly, on the completion of labor, and, above all, more especially whenever that has been tedious, instrumental, difficult, or complicated, the uterine cavity, as well as the vagina, should be thoroughly flushed out with hot boric or carbolic solution, or peroxide of hydrogen. For this purpose the irrigator should invariably be employed, as the ordinary siphon syringe, when misused for uterine injection shortly after delivery, is extremely liable, as exemplified by cases referred to by the writer, to force the injected fluid, or even air, through the Fallopian tubes, giving rise to metro-peritonitis, or into the then patulous uterine sinuses, and may thus possibly occasion death from embolism.

Although the prevention rather than the treatment of puerperal septicæmia is the object to which the obstetrician may most profitably direct his attention, the latter subject cannot be here omitted from consideration, and must be chiefly guided by the special type of the disease, as well as by the predominant symptoms and condition of the patient in each instance. In the now more prevalent typhoid form of puerperal fever, the disease is distinctly of a remittent character, as shown in several clinical charts exhibited. For its treatment, free stimulation, suitable nutrition, and strict asepsis by local irrigation of the urethro-genital tract are essential; while, in the way of medicine, there are only three drugs which appear to the writer as possessing any approach to specific remedial or germicidal action in such cases,—viz., quinine, sulphurous acid, and turpentine.

In all cases of puerperal fever in which the use of rectified spirits of turpentine may be tolerated by the stomach and bowels, the writer believes that no other remedy is of such general utility as this, the efficacy of which (like so many other obstetric ideas the credit of which has been given to modern foreign authorities) was originally demonstrated in Dublin by a long-forgotten Irish practitioner, Dr. Brennan, upward of eighty years ago. The remedial action of turpentine in appropriate cases of puerperal fever the author has proved, and ascribes to the probable germicidal potency of the drug no less than to the effect of a powerful stimulant. Besides, there are other agents available in accordance with the special symptoms and stage of the disease and condition of the patient in each case, which need not be referred to, as their employment must obviously be directed by the broad principles of general therapeutics. In the earlier stage of puerperal fever no remedy has afforded such advantage in reducing temperature and pulse-rate, unlocking pent-up lochial and mammary secretions, inducing sleep and tranquillizing the patient, as phenazone (antipyrin) in small and repeated doses. The effects thus produced are, however, too frequently but temporary, and in the latter stages of puerperal septicæmia, or where from the first the intensity of the puerperal septicæmic intoxication and consequent prostration are most marked, then, it is almost needless to add, antipyrin is distinctly contra-indicated.

APOCYNUM CANNABINUM IN HEART-DISEASE.

A. G. GLINSKI (*Vratch*, Nos. 6 and 7, 1894), after having proved by experiments on cold-blooded and warm-blooded animals that the root of the *Apocynum cannabinum* contains a strong poison which in large doses paralyzes the heart, and when given in small quantities retards and strengthens its beats, decided to take it himself, as he is suffering from hypertrophy of the left ventricle, with intercurrent attacks of dilatation of the organ, mitral murmur, dyspnœa, etc. The dose was 15 drops of the fluid extract three times a day. As he found that all his symptoms disappeared in two days, he gave it also to other patients in the same quantity in cases of palpitation, disturbed compensation, in which strophanthus and adonis vernalis had failed and digitalis seemed contraindicated. He gives a full account of some of his cases, and summarizes his experience in the following conclusions:

1. The action of the root of *Apocynum cannabinum* is similar to that of digitalis without being cumulative.

2. In cases of dilatation the fluid extract rapidly diminishes the area of dulness.

3. It increases the daily amount of urine,

stops the palpitation, and promotes the absorption of transudations.

4. With the exception of increased pulsation of the arteries of the head, it has no bad secondary effects. It was used either in the form of a decoction (1 drachm to 8 ounces) three to four tablespoonfuls a day, or tincture (1 in 10) 5 to 10 minims three to four times daily, or fluid extract in doses of 10 minims to ½ teaspoonful three times daily.—*British Medical Journal*, June 23, 1894.

QUININE AMBLYOPIA.

From the study of this subject, CLAIBORNE thinks the following conclusions may be drawn:

1. Quinine in toxic doses may produce blindness.

2. The toxic dose is distinctly indeterminate.

3. The duration of the amaurosis varies largely.

4. The field of vision remains contracted.

5. Central vision usually returns to the normal.

6. There is color-blindness at first; the color perception is ultimately restored within the central field.

7. The ophthalmoscopic picture is that of white atrophy.

8. Experiments on dogs show that there is atrophy of the entire optic tract.

9. The same experiments show that the cells of the cuneus are probably not affected.

10. Treatment is of no avail.—*New York Medical Journal*, June 30, 1894.

TREATMENT OF TYPHOID FEVER.

OSLER ("Johns Hopkins Hospital Reports," vol. iv., No. 1) states that two hundred and twenty-nine cases of typhoid fever have been treated in the hospital. The cases in the first year (thirty-three in number) were treated symptomatically; they yielded a mortality of 24.2 per cent. The remaining cases were subjected to the cold-bath treatment, and yielded a mortality of 7.1 per cent. The cases in the first year were of unusual severity, but the mortality under the cold-bath treatment was very favorable when compared with the average mortality in hospitals in America, which, according to Osler, ranges from ten to fifteen per cent. A bath at 70° F. was given every third hour, when the temperature taken in the rectum was 102.5° F. or over. If the fever was very slightly reduced by the bath at 70° F., it was given colder (65° F.). The temperature was taken half an hour after the bath, and again three hours after. If then above 102.5° F. the bath is repeated. The frequency of the baths thus depended on the severity of the case; the average number in the twenty-four hours was four, but the maximum number (eight) was often given. The patient was lifted into the bath covered with a sheet or with a napkin round the loins. Cold effusions to the head during the bath were regarded as important, especially in cases with marked nervous symptoms. A cloth wrung out of ice-water was placed upon the head, and the head and face bathed with a sponge wet with the same water. The trunk and limbs were rubbed during the bath with a cloth or bath-rubber; this was found to counteract the shivering and tendency to cyanosis. The usual duration of the bath was twenty minutes, but in feeble patients the duration was reduced when there were signs of increasing weakness. Brand's injunction to begin the treatment at the very beginning of the disease could not be carried out in the majority of cases, as only ninety-five cases were admitted in the first week, and most of these at the end of it. Half an hour after the bath the temperature was found to have been lowered from 1° to 3° F., but, as a rule, during the height of the disease, in two hours more the temperature had risen again to its former height. In "not a few cases" the bath at 65° F. had very little influence in reducing the fever, and in none was it found possible to keep a patient afebrile. In some cases, particularly in children, and at a late stage (third week) in adults, the bath at 70° F. brought the temperature down to normal, or to 96° or 95° F. The bath has a tonic effect on the circulatory system, especially in the early stage of the fever; it seems to be exercised as much on the peripheral arterial system as on the heart. The most striking effects of the bath are on the nervous system: headache is relieved; the patient sleeps well; tremor, delirium stupor, and coma are rare. In the series reported only thirteen presented marked nervous symptoms. The dry, brown tongue and gastric irritation are less often seen. Speaking generally, the "typhoid state" is not nearly so frequent under the cold-bath treatment, which appears also to have an influence in diminishing diarrhœa and tympanites. In the series reported, hemorrhage and perforation were more frequent, and relapse more often observed in those treated by the cold-bath treatment, but this may have been accidental, and, as has been stated, the general mortality was much lower. Complica-

tions were rare, with the exception of boils, which were frequent. The baths do not aggravate the preliminary bronchitis and do not induce pneumonia or pleurisy.—*British Medical Journal*, June 23, 1894.

TREATMENT OF TRAUMATIC SHOCK.

T. S. K. MORTON writes in the *Polyclinic* of June 30, 1894, on shock. He thinks external applications of heat easily take precedence of all measures for treatment of shock. If the clothing be wet, it should be hastily removed. If not, it may be removed from one part at a time, while to others warmth is continuously applied. The apartment in which the patient lies should be heated to 90° F., or even 100° F., if possible. He should be placed in proximity to fires if impracticable to remove him to more suitable surroundings. Blankets should be heated to a high degree in an oven or otherwise, and be wrapped about each part, while more blankets should be tucked in over all. Hot-water bottles or cans should then be packed in all about, but scrupulous care must be taken that the patient be not burned by them. Burns from this cause are distressingly frequent even in the best-conducted hospitals. The tissues during shock appear to be far less resistant to heat than in health, while the sensations are benumbed; hence very severe burns may result in an incredibly short time from even moderately-heated bottles. An additional safeguard is to wrap each bottle in a separate piece of blanket, and never to permit them to come into immediate contact with the skin. A hot bath, if attainable, is a most efficient means of combating shock. This may be made of 90° F., the patient put in, and then more hot water added until a temperature of 100° to 110° F. is reached. For measuring this a thermometer should be employed. If a water-bed is available, it may be filled with water of 120° F., a light blanket thrown over, and the patient placed upon it. To prevent shock during operations, steam and hot-water operating-tables have been devised.

Rectal injections of water of 110° F. are exceedingly useful. Large amounts of caloric may thus be thrown into contact with the great viscera and abdominal nerve plexus, if the injection is slowly given, and particularly if the rectal tube (inserted beyond the sigmoid flexure of the rectum) is employed.

Very hot drinks are also useful in amounts not exceeding two ounces, frequently repeated if the patient can swallow, but are neither so efficient in relieving shock and thirst nor in supplying a circulating medium in cases of hemorrhage as are the enemata.

A method of applying hot air to a shocked person, which can readily be adapted and is exceedingly efficient, is to raise the bedclothes by a few barrel-hoops. Then procure a couple of pieces of stove-pipe with a right-angle joint. Insert the horizontal end of the pipe under the bedclothes at the foot of the bed, well above the patient's feet (which otherwise might be burned), and under the vertical end place an alcohol or other lamp. The heated air from the lamp will ascend through the pipe and surround the patient to his neck with a heated atmosphere. A more elegantly constructed appliance of this description has done valiant service in the Polyclinic Hospital.

While heat is being applied, frictions may also be resorted to with good effect. For this a hand is inserted under the snugly tucked in blankets, and one extremity after another is rubbed and kneaded towards the heart. Several persons may be thus employed upon different parts, caution being urged that no cold air meanwhile be admitted under the covers. To make these manipulations more efficient in stimulating the cutaneous circulation, a little table salt, mustard, or turpentine may be rubbed in.

Large mustard-plasters or turpentine stupes placed over chest and abdomen likewise greatly aid in restoring the shocked subject.

Where hemorrhage has been marked, transfusion of hot saline solution (common salt six-tenths per cent. in distilled water, boiled and cooled to 105° F.) is imperatively called for. It may be slowly thrown into a vein to the amount of one to three pints, according to the quantity of blood lost, by a syringe, or from an ordinary sterilized douche-bag and canula. The internal saphena vein as it crosses the internal malleolus is a favorite point for its introduction. This vessel is difficult to locate in a collapsed subject, but may generally be made to stand out sufficiently to be identified by the application of a band or tourniquet loosely to the lower thigh or by depression of the member over the side of the bed. The pulse or heart-action must be the guide for the amount to be injected. Prompt response by that organ is the rule, but if no cardiac response takes place, not more than three pints should be employed at one time; the canula may be left in place, and more solution be used at a later period, if required.

The heart may also be stimulated and the

circulation of the nerve-centres and great viscera be improved by elevation of the lower extremities. We have known success to follow almost complete inversion by tying the feet to the end of the bed, and then raising the footboard to an almost vertical position. Bandaging all of the extremities has a similar effect. Artificial respiration also is occasionally efficient in prolonging the vital spark until the equilibrium of the nervous and vascular systems is re-established. Electrical stimulation of the heart may be tried.

Operations, transportation, or other manipulations calculated to renew or prolong shock should never, except under the most exceptional circumstances, be undertaken until reaction is fully established and the temperature has reached normal or, better, gone considerably beyond. Violation of this rule is accountable for the terrible mortality of major operations for traumatism in the hands of those doing but occasional surgery.

Food should not be administered until reaction has well advanced (as shown by a temperature rising towards the normal), as digestion is suspended during shock, and prompt vomiting or decomposition would quickly result. It is questionable whether the benefits of irrigation of the stomach with hot water are not counterbalanced by the additional shock induced by the passage of the stomach-tube, unless much food is present and can be removed at the same time. When reaction is almost established (temperature 98° F. and over), hot beef-tea and two-drachm doses of diffusible stimulant, as brandy or whiskey, well diluted, are permissible and efficacious. But for some time after reaction, food must be of the most absorbent character, that it may be handled by the enfeebled digestive organs. Peptones, peptonized milk, beef-tea, and strong coffee, always hot, then become available. These may also be administered by rectum, at intervals of not less than four hours, and considerably diluted. For the latter purpose the following formula is satisfactory: Liquid beef and bread peptonates, ½ ounce; peptonized milk, 2 ounces; hot water, 3½ ounces. To this two drachms of stimulant (brandy or whiskey) may be added in addition to the sherry found in most of the liquid peptone preparations on the market, if the rectum proves retentive.

Of the drugs which we have come to rely upon in treating shock, may be mentioned atropine, strychnine, ammonia, digitalis, morphine, oxygen, ether.

If pain is present, $\frac{1}{4}$ grain of morphine with $\frac{1}{100}$ grain of atropine, hypodermically, is efficient; the atropine is always called for, with a smaller dose of morphine in cases where pain is not a feature.

Strychnine may be given in $\frac{1}{60}$-grain dose by hypodermic in conjunction with the above, and is certainly a powerful stimulant.

Digitalis is used in 10-minim subcutaneous doses, more as the effect of the previously administered drugs begins to pass away, in order to maintain the effect upon the circulation for a prolonged period.

Pure ammonia is very useful as an inhalant, a few drops upon a little absorbent cotton being held to the nostrils for an inspiration or two several times a minute, until other remedies begin to take effect. Oxygen, if at hand, is one of the most powerful, yet safe, remedies that we possess; through a mask or tube the patient is permitted to inhale the pure gas for a half-dozen or more respirations in each minute.

For very quick but transitory effect, a hypodermicful of ether or brandy, or even aromatic spirits of ammonia, is very satisfactory, unless the patient has been under ether anæsthesia. In this case resort should not be had to the two former agents.

It is important in treating shock that too many drugs or too many individual remedies be not employed. Poisoning must frequently take away a last chance from the patient, where repeated doses of powerful medicines are indiscriminately given in the excitement incident to a desperate case. Remedies even here must be used with discretion and doses be graduated by effects.

THE NEW TREATMENT OF DIPHTHERIA.

It seems likely that yet a new boon to humanity may ere long be anticipated from recent knowledge gained by experimental research. Sir Henry Roscoe's interesting and able speech at the recent meeting of the National Health Society at Grosvenor House directed public attention to the remarkable results obtained by Ehrlich, Kossel, and Wassermann in the treatment of diphtheria. A full summary of these was given in the *British Medical Journal* of May 5. They deserve to be put to the test in this country as soon as possible. Various investigations have recently been made, especially by Behring and Kitasato, on the antitoxins of tetanus and diphtheria, and they found that a substance was present in the blood-serum of immune animals which had the power of conferring a certain degree of immunity in other animals, and even of arresting the disease when

it had begun. These facts were applied by Tizzoni and Cattani to the treatment of tetanus in man, but with only imperfect results. The authors have followed the same lines in applying the method in the treatment of diphtheria, but they have taken special measures to obtain a particularly powerful antitoxin for the purpose. They began with producing immunity in goats by injecting increasing quantities of boiled cultivations of diphtheria bacilli, and the degree of immunity was subsequently further increased by injecting larger and larger quantities of extremely virulent cultivations of diphtheria bacilli. The serum of these animals thus contained large quantities of the antitoxin, and before going further they devised a method of measuring accurately the exact amount present. It had been found by Behring and Kitasato that, if the poison and the serum antipoison were mixed together in a test-tube in proper proportions, they neutralized each other, and that the mixture when subsequently injected into an animal was inert. They took as a standard of the poison a material of which .3 gramme per 1000 grammes of the body-weight was a certainly fatal dose. For animals of two hundred to three hundred grammes' weight they used ten times this amount,—namely, eight cubic centimetres,—and then added to this two, three, four grammes, etc., of the serum to be tested. The mixtures were then immediately injected into a series of guinea-pigs, and if the poison had not been completely neutralized, this was evidenced in twenty-four or forty-eight hours by local infiltration at the seat of injection and by loss of body-weight. In this way the exact amount of any given serum required to neutralize .8 gramme of poison was ascertained. As the unit of immunity they take serum, of which 1.5 milligrammes neutralizes .8 gramme of poison, and in the treatment of children they employed a quantity of serum containing an amount of antitoxin representing one hundred and thirty to two hundred immunity units.

The investigations were carried out on two hundred and twenty children suffering from diphtheria (proved by bacteriological examination) at all stages and in various hospitals in Berlin. The rough result is that of these two hundred and twenty cases, of which sixty-seven had already required tracheotomy before the treatment was commenced, fifty-two died and one hundred and sixty-eight recovered. Of the one hundred and fifty-three cases in which tracheotomy was not performed, only twenty-two, or 14.3 per cent., died, the cause of death in these instances being in eight sepsis, in seven pneumonia, in six complications, such as paralysis and nephritis, and in one acute tuberculosis. Of the sixty-seven cases in which tracheotomy was done, thirty, or 44.9 per cent., died, the cause of death being in four sepsis, in twenty-three pneumonia, in two sequelæ, and in one acute tuberculosis. Many of these cases were, however, admitted several days after the disease had commenced and when there was hardly any hope of saving them. The results are very striking, if they are considered in relation to the duration of the disease. Six cases were admitted during the first twenty-four hours, and all recovered; sixty-six were admitted the second day, and only two died. Thus, of seventy-two cases admitted during the first forty-eight hours, only two died. Of these seventy-two cases, tracheotomy was necessary in nine, and the two which died were two of those in which tracheotomy was performed. On the third day twenty-nine cases were admitted, and of these four died; on the fourth day thirty-nine, of which nine died; on the fifth day twenty-three, of which ten died. The percentages of recovery, according to the day of admission after the disease commenced, were, therefore, one hundred, ninety-seven, eighty-six, seventy-seven, fifty-six and one-half per cent., etc.

In most of these cases only a single injection was made, but subsequently, in bad cases, several injections were employed, and the authors think that they might have saved some of those who died, especially from sequelæ (paralysis, etc.), if they had used repeated injections.

Before using the material, it was first ascertained that it was quite innocuous and produced no effect when injected into a healthy individual. When injected in cases of diphtheria, it was only when large amounts were employed that any immediate effect on the pulse or temperature was observed, but in a certain number of cases there was an almost critical fall of temperature and pulse on the day after the injection. The authors explain the fact that, as a rule, the temperature does not immediately fall, because it is only in the very early stage that the disease is pure, and it very soon becomes complicated with septic bacteria, which keeps up the temperature, although the diphtheritic poison has been neutralized. The authors' conclusions are as follows:

1. The fate of the patients depends on the treatment during the first three days of the disease; hence the serum should be injected as soon as possible after its commencement.

2. In mild cases the amount introduced should be at least two hundred immunity

units; in severe cases and in those where tracheotomy is necessary, four hundred units.

3. The injections should be repeated on the same or the following day, according to the general and local symptoms, the total amount varying, according to the severity of the case, from five hundred to fifteen hundred immunity units. In thirty cases where repeated injections were employed, some of them very severe cases, sixteen of them requiring tracheotomy, only four died, these four having had tracheotomy done, with little or no relief to the breathing.

Full details of the methods and cases will be published as soon as possible, and it is to be hoped that this method will be put to the test elsewhere as soon as possible. Already it is being tried in Paris with most satisfactory results.—*British Medical Journal*, June 23, 1894.

CHLORAL HYDRATE.

BRODNAX contributes a paper on chloral to the *Polyclinic* of June 30, 1894, of which a part follows:

As an hypnotic, 5 grains of chloral combined with laudanum or with ⅛ or ¼ grain of morphine acts splendidly, this combination intensifying the effect of each and depriving the opiate of its stimulating property. With children, by itself, in sweetened water, it has no equal; mixed with paregoric, it is also good.

It is prepared as follows: Cover the amount in a case-vial with glycerin; this dissolves it, and a drop is about a grain. In this form it mixes readily with oil or water, and is more quickly prepared, and more easily divided into doses, large or small. With castor oil the dose 1 to 5 grains renders it less nauseating, and does not gripe, at the same time producing quiet and rest.

Applied to the skin in eruptive diseases (measles, urticaria) as follows: chloral, 10 grains (drops); carbolic acid, 10 grains (drops); water or oil, 1 to 2 ounces, almost instant relief is experienced of the intense itchings; or chloral, 10 drops; glycerin and water, each ½ ounce, produce the same effect.

As a mouth-wash: Chloral, 10 grains, glycerin and water, each ½ ounce; a teaspoonful produces a pleasant cool sensation in salivation, as a gargle. After holding it for a moment in the mouth, it should be rejected and an equal amount of the fresh solution may be swallowed. Carbolic acid (10 drops) added makes it more effective in ulceration of the mucous coverings. It seems to act on the nerves locally, the same as chloroform by inhalation does on the body.

In toothache: Chloral, camphor, glycerin, carbolic acid, equal quantities, applied on a small piece of cotton, after cleaning the cavity, will relieve the pain. (Cover with more cotton to fill the cavity.) If the patient has lost sleep, the author gives a full dose of chloral by the mouth.

For ulcerated sore throat, or ulceration from any cause, such as scalds: Chloral, 10 to 15 drops (grains); water, 1 to 2 ounces, as to age; sugar, to make it palatable to children; a teaspoonful, repeated at short intervals until sleep is induced, then in waking to keep them fully under its influence.

Earache: Camphor, 10 grains; chloral, 10 grains; carbolic acid, 10 grains; castor oil, ½ ounce. Drop into the ear warm. Fill the ear full, apply a piece of cotton wet in warm water to fill the external ear, then a cloth wrung out in hot water as warm as can be borne.

As an aid to chloroform in surgery or obstetrics, 10 to 15 grains, given twenty minutes before administration of the anæsthetic, seems to intensify the effect, and less than one-half of it is needed to produce the desired effect. In the writer's obstetric practice for the last fifteen years he has used it, and has observed but one case where any unpleasant effects were induced. This was in a woman with her tenth child. He gave the chloral to relax the system (10 grains); in half an hour 5 grains more; in half an hour the chloroform. It affected her almost immediately, and the child advanced and came away in good style, but the woman seemed to be dead drunk and incapable of moving herself. She slept soundly for several hours and awoke all right. She was conscious and would answer questions, but could not move herself. This was the first time she had taken either of the drugs, and she may have been susceptible. Chloral, given before the anæsthetic, seems to tide them over the excited stage of anæsthesia. The first few whiffs of the anæsthetic produce quiet without any excitement. He has used it in a few surgical cases with the same effect. In children, a full dose of chloral, and when sleep comes on they are anæsthetized in that state, and the force often otherwise necessary is avoided.

In coryza, where the Schneiderian membrane is very irritable, chloral, 10 grains (or drops); castor oil, ½ ounce, used with a soft mop, applied over the surface, after being dried, acts to check the excretion of mucus and lulls the irritation and the head-pains.

The supposed influence of the drug on the heart has not been noticed. In any case where there is a chance of any cardiac trouble, it is an easy matter to fortify the heart with $\frac{1}{50}$ grain of nitro-glycerin. In none of the author's cases has the chloral "habit" been contracted.

A METHOD FOR THE ESTIMATION OF ANTIPYRIN.

Having had occasion to determine the amount of antipyrin in admixture with caffeine, which had been "shaken out" with chloroform from a proprietary headache liquid, it was found desirable to estimate the antipyrin without separating from the caffeine. Accordingly, the following reaction was made the basis of a calorimetric method:

When sodium nitrite is added to an acidified, dilute solution of antipyrin, a blue-green color is produced, which is still perceptible in dilutions of 1 in 20,000. In more concentrated solutions a crystalline precipitate of the same color is formed.

These results are due to the reaction between the liberated nitrous acid and the antipyrin, by which a compound is formed that has been shown to be nitroso-antipyrin.

It was determined that a standard solution, that will not turn yellow or fade in from twelve to twenty-four hours, can be made by dissolving .02 gramme of antipyrin in twenty-five cubic centimetres of water, adding 1.6 cubic centimetres of one-per-cent. sulphuric acid, and a cubic centimetre of one-per-cent. solution of sodium nitrite, and then diluting to one hundred cubic centimetres.

When preparing a solution of an unknown amount, for comparison with the standard, a few preliminary trials must be made to determine the amount of reagents required to fully develop the color and not be in such excess as to produce a yellowish tinge in the time required.

To avoid precipitation, the solution must not be more concentrated than 1 in 500.

When thus properly prepared, the solution can be diluted until the color corresponds exactly with that of the standard.

A little calculation will then show the amount of antipyrin present.

Tubes or beakers of white glass placed upon a white surface are convenient for the color comparisons.

Since the reagents employed do not react with other substances, except pyrazolone compounds, which are not of frequent occurrence, and as antipyrin is readily extracted from mixtures by the use of chloroform, this method admits of wide application.

It may also be mentioned that as this reaction does not take place in the presence of nitrites, but requires free nitrous acid, the incompatibility of antipyrin and (acid) sweet spirit of nitre may be prevented by having the spirit neutral or neutralizing with potassium bicarbonate.—SCHAAK, *American Journal of Pharmacy*, July, 1894.

ON THE TREATMENT OF CERTAIN FORMS OF ADVANCED CANCER OF THE UTERUS.

In the compass of this paper the author confines his remarks to the treatment of those forms of cancer of the uterus that, on account of the extent of the disease, are totally unsuitable for any form of operative interference,—that is, vaginal hysterectomy or supravaginal amputation of the cervix.

He comes to the conclusion that for practical purposes we may divide these diseases into three divisions.

1. Those in which the disease is limited to the uterus, this organ being movable and readily drawn down to the vulva.

2. Those cases in which the disease had extended beyond the neck of the uterus into the surrounding cellular tissue, thus more or less fixing the uterus in this situation, and perhaps the roof of the vagina being slightly involved.

3. Those cases in which the disease extended beyond the above limits, invading the vagina and possibly the bladder or rectum, or indeed both these organs.

It is to the treatment of the two latter forms of the disease to which he alludes, and he disposes first of those cases included in the third division first.

When the disease has extended to the vaginal walls, implicating the bladder and rectum, nothing but purely palliative measures can be adopted. Our aim must be to make these poor women as comfortable as possible by relieving their pain and keeping the parts as clean and sweet as we can. To accomplish the first object there is nothing which answers so well as morphine and belladonna suppositories introduced several times a day, if necessary. He has found relief given in many of these cases by, in the first place, syringing the vagina thoroughly well out with a solution of iodine and water, and here it should be stated that this be done through a speculum. The writer has specula of different lengths, so that if the vagina is much involved he can introduce a short one, such as will permit as good a view as possible.

Having syringed the parts as thoroughly as possible, he proceeds with dry tampons of cotton wool to wipe the parts well, removing as much as possible of the sloughy *débris*, which is sure to be present, and finally he applies a solution of chromic acid (2 drachms to 1 ounce) to all the diseased surfaces, being careful not to allow this solution to run on to the healthy tissues. These are protected by applying a saturated solution of bicarbonate of sodium. Finally, a long strip of gauze is introduced and a morphine suppository placed in the rectum.

The vagina is kept syringed out with some antiseptic solution some three times a day. In a few days a quantity of sloughy material will come away and the discharge be very much less offensive, and the pain will be relieved in every case in a most marked degree. The patient improves in general health and the appetite returns. For after-treatment he adopts the plan of inserting a small ball filled with iodoform or iodol, and a strip of iodoform gauze attached to it; this has the effect of keeping the parts wonderfully clean. With respect to medical treatment, our great aim must be directed to giving tonics, keeping the bowels regularly opened, and improving the general tone of the patient as much as possible. Tabloids of Chian turpentine and ichthyol are useful.

In those cases included under the second division, however, there is a much brighter outlook, and it is in these cases that we can hope not only to give relief, but to remove the diseased parts almost as surely and as effectually as we do in those cases which are suitable for complete or partial extirpation.

It must be borne in mind that the post-mortem examination of a number of cases showed that the disease was limited to the cervix and os. In other cases the body was implicated, but very rarely to such an extent as the cervix, thus pointing to the supposition that the disease usually commenced in the cervical canal and then extended outward to the cellular tissue beyond. It must be further borne in mind that only in some of the very advanced cases did the patient suffer from secondary growths, although it is true that there were quite a number who had their lumbar and sacral glands infiltrated with the disease, but in many of these cases the glands did not appear as if they had long been affected. We may, therefore, in this class of disease look upon it as purely a local affection, and we may hope if we can remove the growth that our patients may recover, and possibly be radically cured.

The plan that commended itself most to the writer was that practised by Dr. Marion Sims; the thorough clearing out of the advanced disease, however, appeared to him of paramount importance. The curettes which were adopted by this surgeon and by others did not commend themselves; in fact, disaster followed their use. The author has seen on more than one occasion the curette passed completely through the uterine wall into the peritoneal cavity; moreover, after the uterus has been apparently thoroughly curetted, on examining the surface it has been rough and uneven, with ridges here and there; in fact, these curettes were ill adapted to the purpose. Bell's dredgers also proved inefficient, as they were too pliable and their calibre was too small. The writer then decided to have an instrument constructed somewhat after the principle of Bell's dredger, by which the cutting blades could be increased in size by means of a screw in the handle, and furnished with watch-spring knives so shaped as to enable him to scrape out the contents of the uterus by simple rotation. It is worked by means of a screw. By means of this screw the blades, which when first introduced lie flat on the central rod, are made gradually to expand until they represent an area of about one and a half inches in diameter. Here was furnished an instrument by means of which the writer was enabled to remove the whole contents of the uterus with comparative ease, and as the blades are not too sharp, no mischief can be done with them, and very little bleeding follows its use. By using this instrument a perfectly smooth, even surface is left, and this is of the greatest importance, as, if the surface is uneven, the application of the caustic is rendered uncertain and unequal, as in those parts which are elevated it would naturally penetrate very much less deeply than in the depression.

The writer advocates as a caustic absorbent wool soaked in a solution of chloride of zinc. There is, however, a great difficulty in getting this wool prepared strong enough, as if a saturated solution is used the wool becomes unevenly saturated, and it is knobby and hard. After saturation the wool is carefully dried and kept in a firmly-stoppered bottle ready for use. In very bad cases a paste of chloride of zinc is used, prepared at the time of operation, and the wool soaked in the paste, getting it as dry as possible by squeezing it out in a piece of gauze and then packing the cavity which has been cleared out with it. Great care has to be exercised in packing to prevent the caustic from running over the healthy vaginal walls.

In applying the dredger, the patient, being thoroughly anæsthetized, is placed in the lithotomy position with Clover's crutch. The vagina is then thoroughly irrigated with carbolized water, a Sim's speculum being introduced. By means of stick sponges the vagina is then dried. The dredger closed is now passed into the diseased canal and rotated from left to right. At the same time the blades are opened by means of the screw in the handle. The dredger very shortly becomes full of broken-down diseased tissue. This is readily removed by rinsing the blades in a basin of warm carbolized water. It is then reintroduced and the blades slowly opened, the instrument being removed from time to time and rinsed until it is found that the parts from whence the disease has been removed presents a perfectly smooth surface. There is usually but little bleeding, nothing more in fact than a general oozing. This is readily arrested by having some water as hot as possible and by means of stick sponges applying this to the cavity; when this is found to be fairly dry, the process of packing commences. Should there be much bleeding, it will be advisable to check this either by touching with Paquelin's cautery, or plugging with gauze firmly, or applying perchloride of iron lint. In this case the packing with the zinc-wool must be postponed until the next day, when it can readily be done in the ward.

Packing is best done by having very small pieces of the wool and packing these in with uterine forceps, an assistant steadying the uterus by pressure above the pubes. It is astonishing what a quantity of wool can be packed in these cavities. When the cavity is quite firmly filled, a ring pessary with rubber diaphragm is placed over the mouth. The object of this is to prevent the action of the chloride of zinc at the orifice from being neutralized. The vagina is now plugged with tampons of wool soaked in a saturated solution of carbonate of sodium. The writer finds it a good plan to introduce one tampon thoroughly soaked and allow it to remain in for a few minutes, and then remove it so as to neutralize any of the caustic which may have leaked onto the vaginal wall. Three or four plugs, soaked, are now passed into the vagina, and here again it will be found a great convenience if they are tied together in the form of a kite's tail, as it saves so much trouble when removing them. The patient is now returned to bed.

The next day the carbonate of sodium tampons may be removed and fresh ones introduced, or they may remain in for some few days. Should there be no tenderness or rise in temperature the chloride of zinc packing need not be removed for four or five days; this is most easily extracted by means of Marion Sim's screw, which consists of a long straight steel rod with a very fine double screw, like a very small corkscrew, at the top. After the packing is removed the vagina and cavity should be well syringed out with some antiseptic solution. Weak iodine and water is efficient. A piece of iodoform should be packed into the cavity. This should be removed night and morning and the part syringed on each occasion. In syringing the vagina the writer employs a full-sized Ferguson speculum, as it is much easier to syringe out any sloughs or *débris* that may be detached.

At the end of from seven to ten days the slough created by the caustic will become detached, and can readily be removed by means of uterine forceps. The slough should always be allowed to become quite loose before being removed or troublesome hemorrhage may follow. A healthy, clean, granulating surface usually is left. In some cases it may be necessary to repack the cavity if the disease does not appear to be removed. Should portions of the surface appear roughened, with nodules present here and there, they should be removed by injecting a few drops of solution of chromic acid (1 drachm to 1 ounce) directly into the growth by means of a long hypodermic syringe. This has a very marked effect, causing the nodule to become hard, and this after another week or ten days detaches and can readily be removed.

With regard to medical treatment, he administers small doses of bromide of arsenic with good effect. Chian turpentine also appears in some cases to tend to cleanse the parts. He has had some tabloids prepared composed, some of Chian turpentine, chloride of gold and sulphur, others of turpentine, pyoktanin, and ichthyol. These tabloids have proved most successful in these cases.

Marked beneficial effects have followed the above methods of treatment in his hands. Some have been treated some months ago and are still free from any recurrence. The day after using the caustics the patients expressed themselves as suffering no pain whatever and also said their old pain had disappeared.—FRED. BOWREMAN JESSET, *Medical Press and Circular*, June 20, 1894.

TREATMENT OF ACNE.

The internal treatment must vary with the indications. For the external treatment the "don'ts" are as important as the indications for

positive treatment. In nearly all acnes hot water should be freely used. Perfumed and patent soaps should be condemned. White Castile soap and Pear's unscented soap are the most desirable. The tincture of green soap is excellent when there are comedones present, but is irritant if used too liberally. In pustular acnes, when there are no contraindications, sulphide of calcium, in pill form, best sugar- or gelatin-coated, is useful. Ichthyol, in 5- to 10-drop doses, answers the same purpose,—viz., tends to stop pustulation.

Where the eruption shows evidence of acute inflammation, sedative astringent applications must be made. Where the condition is of long standing, stimulant applications are indicated, with the object of opening the ducts and forcing the glandular action. In indurated acnes, with deep-seated pus lesions, surgical interference is necessary. The lesions should be opened and treated as small abscesses. Care must be exercised with the sulphur preparations to avoid chemical combinations with a possible metallic salt previously used.—DYER, *New Orleans Medical and Surgical Journal*, June, 1894.

REPORT ON THREE YEARS' USE OF NAPHTHOL.

The first noticeable effects of β-naphthol in typhoid fever are a more or less free and continuous diaphoresis, occurring very soon, and a gradual loss of the peculiar apathetic countenance; sleep becomes more natural and prolonged; and on the third or fourth day the character of the pulse changes, becoming slower and softer; this change seems invariably to happen before the fall in temperature takes place,—that is, on the day when the temperature ceases to rise. The offensive odor of the stools gets less each day, and the temperature begins to fall about the fourth or fifth day of the treatment, and becomes normal in three or four days after, without resulting in much loss of strength and without danger, for the writer has never noticed any toxic symptoms from β-naphthol.

There has happened on two occasions a return of the fever after the lapse of three weeks from the time when the temperature became normal, and the same treatment after three days' watching has had to be repeated. This he regards as possible evidence of the value of the treatment, assuming the second attack to be due to renewal of activity in the morbific agents, whose development had been suspended by the antiseptic, these agents not having been removed from the bowel, in consequence of the obstinate constipation succeeding the first attack in both cases. He now prevents constipation and maintains the treatment for a week after temperature becomes normal.

There of course is nothing new in the use of naphthols or naphthalin in typhoid, but it is probable that the comparatively poor results hitherto recorded may be due to the defective method of administration, which has almost always been in the form of powder. Now, solid naphthol is irritant, and the powder particles are apt to increase the intumescence of the affected intestinal glands when they lodge on them, and so tend to undo what good may result from the antisepsis. The reason of this lies in the insolubility of β-naphthol in water; this may readily be overcome by first directing the β-naphthol to be dissolved by heat in olive or sweet almond oil (ten times its measure), and then the resulting solution to be emulsified with powdered gum acacia, preferably; this, sweetened and flavored, makes a palatable emulsion. Being somewhat pungent, it requires watering for children; all take it well. The author employs 4-grain doses every four hours for adults, in a mixture such as this:

℞ β-naphthol, ʒi;
Ol. olivæ opt., ʒx (dissolve with heat);
Pulv. gum acaciæ, q. s.;
Ol. cassiæ, ♏vi;
Glycerini, ℥i;
Aquæ, ad ℥viii.
M. ft. emulsio, capiat ℥ss every four hours.

It seems that though a large portion of the β-naphthol passes down the alimentary canal unabsorbed and unchanged, rendering the entire tract less septic, some portion is absorbed, and acts as a diaphoretic and soporific.—E. H. EMBLEY, M.B., *Australasian Medical Journal*, May 20, 1894.

SOME OF THE USES AND ABUSES OF THE NITRITES.

The nitrites are a group of remedies which includes the nitrites of sodium, potassium, and nitro-glycerin, or glonoin, as it is now named in the new Pharmacopœia.

They are a somewhat important class of remedies, being prompt in action, but of short duration, and demanding their frequent administration to maintain continued effects.

In order to have an intelligent understanding of their therapeutic uses, it is necessary to know something of their physiological action; and while clinical experience may be the

touch-stone which solves the mystery of remedial agents, a good knowledge of pharmacodynamics will often restrain or prevent the employment of remedies whose administration would prove prejudicial to recovery. When taken they cause a sense of cerebral fulness, flushed face, pain in the head, rapid heart-beat, and lowered blood-pressure. The rapidity of heart-beat is caused by their depressant action on the inhibitory branches of the vagus, and to the sudden relaxation of the terminal arterioles in front from vaso-motor paralysis. The flushed face is caused by the dilatation of the capillaries, and the lowered blood-pressure to the lessened resistance in front. It may be accepted as a fact, to which there are but few exceptions, that when there is very little resistance in front,—that is, lowered blood-pressure,—the heart endeavors to make up or compensate the loss by increasing the number of its contractions, and when we employ an agent like the nitrites, which also paralyzes the inhibitory centre, the number of heart-beats is greatly increased.

On the nervous system their action is not so marked, but they take rank as sedatives or depressants, confined to the motor tract of the cord. In the blood they transform hæmoglobin to methæmoglobin, and thus lessen or destroy the oxygen-carrying function of the corpuscles. The blood becomes venous and of a chocolate color, with consequent lowering of the body temperature, due to decrease of oxidation and increased radiation of heat from the dilated capillaries.

The diseases in which the nitrites have been found beneficial are those of a spasmodic nature, whether local or general, such as whooping-cough, spasmodic cough, hystero-epilepsy, and convulsions of children. Hystero-epilepsy and simple hysteria he has found yield to a single dose of glonoin. In interstitial nephritis the nitrites, especially the glonoin in combination with digitalis, are useful. In this disease we have heightened blood-pressure, owing to spasm or constriction of the terminal arterioles, and an hypertrophied left ventricle, a condition of affairs which, if not cured, is relieved by the nitrites. Death from croupous pneumonia always comes from cardiac failure. When there is impending failure of the right heart from over-distention, the nitrites, by dilating the arterioles, thereby diminishing the work which the heart has to do and causing an equilibrium in the distribution of the blood, have been found of benefit, particularly if employed on the first appearance of the engorgement.

Migraine, when there is a spastic or constricted condition of the cerebral vessels, is sometimes relieved by their administration. Other conditions of acute cerebral anæmia are also rapidly relieved by them, such as syncope and anæmic epilepsy.

Many other similar conditions which will suggest themselves are greatly benefited by the use of the nitrites. Cardiac dyspnœa, attended by high arterial tension, will be greatly relieved by their employment. The pain due to aneurismal pressure is sometimes alleviated by them. Generally, if they will do good in a certain case, their action is prompt.

The contraindications are important.

We find the surface pale and cold in shock, the heart beating feebly and often the beat greatly increased in frequency, complete muscular relaxation, and depression of all the vital functions. The pale, cold surface is caused by the paralysis of the vaso-motor system and by the recession of the blood to the muscles and abdominal viscera. Now, why, in such a condition, should such paralyzing and depressing agents as the nitrites be given, except we believe in the law of similars? Is it prudent or good therapeutics in such a case to give a remedy whose chief action is to still further depress that weak heart, to still more paralyze the vaso-motor system with which the integrity of the circulation and blood-pressure is in such intimate connection and relation? The author firmly believes this procedure to be wrong.

During the past year two eminent men have died in this country, and the public press informed us that when they were in extremis, "nitro-glycerin, a powerful heart stimulant," was given to brace up the flagging heart and prolong their lives. Let us investigate this statement and see if we can elicit the distinguishing characteristics of heart stimulants. We find they cause (*a*) increase in the number of heart-beats, (*b*) rise in the blood-pressure, (*c*) increase of blood in the cerebral arteries. Do we find such to be the specific action of the nitrites on the circulatory system? No, except that the heart-beats are greatly increased in frequency, caused by paralysis of the inhibitory nerve, and the dilatation of the peripheral vessels from relaxation of their muscular coats through vaso-motor paralysis. Consequently there is a loss of resistance in front which immediately results in a great fall in blood-pressure, and the resultant action serves only to intensify the already existing state of cardiac insufficiency and adynamia.

If the physiological action of a remedy is to serve as a guide for its intelligent administra-

tion in disease, it is difficult to understand why the nitrites are given in cases of genuine intrinsic cardiac failure.

"A perfect circulation" is one which empties the veins and fills the arteries,—the very antithesis of the condition produced by the use of the nitrites. Its employment, therefore, in essential cardiac adynæmia is one fraught with great danger. In threatened heart-failure from alcoholism, and when it has actually taken place from chloroform or ether, he believes the administration of the nitrites to be prejudicial to recovery, as their dominant action is to weaken the pulse and lower the arterial tension.—JAMES NEWELL, M.D., *Canada Lancet*, July, 1894.

THERAPEUTICS AT THE INTERNATIONAL MEDICAL CONGRESS.

It may happen that the most successful and largest medical congresses are not particularly rich in therapeutic work. Yet, after all, when the heat and smoke of the day are cleared away, one feels that the important query is, Has anything been said or read which will make the treatment of diseases more sure and effective?

We have been looking over the records of the International Congress at Rome, and have tried to find what practical therapeutical suggestions were made at that time.

The results of our study, which has been facilitated by a critical review in the *Gazette des Hôpitaux*, have not been very fruitful, nor yet altogether barren. For example, DR. PETRESCO, of Bucharest, comes forward again with further facts regarding his treatment of pneumonia with large doses of digitalis. He has employed his method now for thirteen years and treated eleven hundred and ninety-two cases, and he has reduced the mortality to 1.22 and 2.66 per cent., while under other treatment the mortality ranges from 7.15 to 35.50 per cent.

A year ago we discussed Petresco's method, which consists of giving 8 or even 12 grammes of digital leaves in twenty-four hours. According to the author, it invariably jugulates acute lobar pneumonia in a few days.

DR. GOFFREDI, of Naples, calls attention to the value of lactose as a diuretic, particularly in heart-disease. It is not so effective in nephritis. Diarrhœa is sometimes caused by the lactose.

DR. PUCCI praises very highly the use of phenocoll in malaria. He gives from ½ to 1 gramme a day.

After having broken up the paroxysms, the drug is continued five or six days in association with quinine or arsenic. It is also very useful in malarial neuralgia.

A curious contribution to therapeutics is that of DR. SANCHEZ HERRERO, of Madrid, who recommends a solution of bromide of potassium, 50; iodide of potassium, 5; and water, 500, in the treatment of epilepsy. Dr. Herrero is evidently not familiar with some of the very ancient formulas for epilepsy, including that of Brown-Séquard. We should add that the doctor adds to his treatment hypnotic suggestion twice a week, and that he has cured nineteen cases out of thirty.

DR. A. MURRE, of Bologna, makes a protest against the abuse of cold water in the treatment of chlorosis, but at the same time thinks that cold water, properly used, is better than drugs in this condition.

DR. TISON thinks that the nitrate of aconitine is useful in facial erysipelas, shortening the attacks and lessening the pain. He gives $\frac{1}{600}$ grain ten times a day.

VON ZIEMSSEN, of Munich, would have us return to the use of transfusion of blood, particularly in grave anæmias.

The best method is the arm-to-arm one without defibrinating, but if this is not practicable, he recommends subcutaneous injection of non-defibrinated blood. This ought to be given under chloroform and followed by massage, as the process is very painful. It is safe to say that a treatment involving regular anæsthetization of the patient will hardly become popular, and certainly is not safe.—*Medical Record*, July 14, 1894.

THE MEDICAL TREATMENT OF ICTERUS DUE TO RETENTION.

In an article upon the above subject, DUJARDIN-BEAUMETZ (*Bull. Génér. de Thérapeutique*, June 15, 1894) believes that, previous to surgical interference in the treatment of icterus, diet is of the utmost importance, and this should consist preferably of raw white meats, green vegetables, and fruit. The moderate use of eggs is also of advantage. All alcoholic beverages should be avoided. For drinking purposes, alkaline waters, such as Vichy and Carlsbad, to which a little milk should be added, are to be preferred. Tea and coffee may be allowed, especially tea, which, in the cases under consideration, acts as a general stimulant, enhances digestion, increases the bodily energy, and excites the heart, all this tending to improve an impaired nutrition.

Vichy pastilles are recommended, each one of which contains five-twelfths of a grain of bicarbonate of sodium; forty pastilles represent, therefore, sixteen grains of the sodium salt. Being slowly dissolved, these pastilles act as a sialagogue, through which action a large quantity of saliva will accumulate in the stomach, the remedy producing in this way good therapeutic effects. In regard to other medicinal agents, the author advises the use of certain antiseptics, such as salicylate of sodium and asaprol, these to be preferred to other similar remedies. At each meal the patient should take an 8-grain cachet of salol and another 8-grain cachet of asaprol, or a tablespoonful of the following solution, accompanied with the salol cachet:

℞ Salicylate of sodium, 240 grains;
Water, 8 ounces.

PUERPERAL ECLAMPSIA TREATED BY VENESECTION.

The following interesting case from a practical stand-point is reported by McLEOD in the *Australian Medical Gazette* for May 15, 1894.

Mrs. C., aged eighteen. When labor began she was eight months pregnant with her first child. Her friends thought she was having hysterical fits, and sent for the writer. She had three of these "fits" before his arrival. He found the patient in bed and only partially conscious. Pains were regular, and her pulse was over 100. She presently had a "fit" which settled the question of diagnosis.

On examination the os was found dilated to the size of a two-shilling piece; the head was presenting and the membranes unruptured. The bladder was emptied and 40 grains of bromide of potassium injected into the rectum.

During the next half-hour three convulsions occurred; thereupon the os was sufficiently dilated to apply the forceps, and a living male child was delivered in about fifteen minutes. The placenta came away entire. The uterus contracted firmly, and no post-partum hemorrhage whatever occurred. The convulsions continuing after the uterus was emptied, more bromide and chloral was injected into the rectum.

Returning three hours later, the author found six convulsions had occurred. The pulse was now 120 and the temperature 103°. Within the next three hours, and after a further dose of bromide and chloral per rectum, eight convulsions occurred. The patient was now quite comatose and the breathing was stertorous.

As a last resort he proposed bleeding, and with difficulty got the consent of the parents. He allowed about sixteen ounces of blood to run from the vein in the right arm. No more convulsions occurred, the breathing became quieter, and when he visited her again—thirteen hours after delivery—the pulse had fallen to 85 and the temperature to 101°. Consciousness was returning, and she could recognize her friends. Her condition gradually improved, and when seen on the eighth day she was quite clear mentally, but inclined to be quiet. She made a perfect recovery.

Probably, had there been a profuse post-partum hemorrhage immediately after the emptying of the uterus, the convulsions might have ceased at that stage.

SOME PRESCRIPTIONS.

In a recent lecture on the art of prescribing medicines, DUJARDIN-BEAUMETZ (*Bull. Génér. de Thérapeutique*, May 30, 1894) treats of external medication, and publishes several combinations devised by himself and other practitioners, as follows:

For an Eye-Wash.—All former eye-washes made up of nitrate of silver, atropine, eserine, or sulphate of zinc have of late been substituted by antiseptics, chief among which is corrosive sublimate, according to this formula:

℞ Bichloride of mercury, ½ grain;
Distilled rose-water, 5 ounces;
Sydenham's laudanum, ½ drachm.

For an eye-salve:

℞ Red oxide of mercury, 15 grains;
Crystallized acetate of lead, 15 grains;
Powdered camphor, 7½ grains;
Vaseline, 288 grains.

Sternutatory Powders.—GRELLETY has proposed the following in acute coryza:

1. ℞ Betol, 40 grains;
Menthol, 4 grains;
Cocaine, 8 grains;
Powdered coffee, 72 grains.

DIEULAFOY, according to Huchard, recommends this combination:

2. ℞ Salicylate of bismuth, 240 grains;
Camphor, 80 grains;
Cocaine hydrochlorate, ⅛ grain.

JULIAN advises the use of this ointment:

3. ℞ Menthol, 3⅓ grains;
Boric acid, 80 grains;
Vaseline, 800 grains.

Tooth-Powders.—The following formula is recommended by GALIPPE, and has, according to Dujardin-Beaumetz, given excellent results:

1. ℞ Boric acid, 400 grains;
Phenic acid, 16 grains;
Thymol, 4 grains;
Water, 1.7 pint.

To this may be added, with advantage:

Essence of peppermint, 20 drops;
Tincture of aniseed, 2½ fluidrachms;
Cochineal, sufficient quantity to color it.

MAGITOT has proposed this simple combination:

2. ℞ Thymol, 8 grains;
Borax, 16 grains;
Distilled water, 15 ounces and 5 drachms.

An antiseptic tooth-powder, as recommended by LE GENDRE, is composed as follows:

3. ℞ Finely-powdered boric acid, 40 grains;
Chlorate of potassium, 32 grains;
Powder of guaiac, 24 grains;
Prepared chalk, 64 grains;
Powdered carbonate of magnesium, 64 grains;
Essence of rose or mint, 1 drop.

COCAINE IN MINOR SURGERY.

The following case may be of interest to those members of the profession situated in isolated country districts where a second medical man is not available for assisting at operations. It is also with the hope of inducing others with larger opportunities to give cocaine a further trial that this report is given.

P. W., a half-caste, who had for some weeks previously been operated upon for hydatids of the liver, presented himself with symptoms of a right-sided empyema. An exploratory puncture revealed the presence of fetid pus with traces of bile, and by means of a Dieulafoy's aspirator about four pints of extremely fetid purulent fluid were withdrawn. This afforded some temporary relief; but a few days after his condition was worse than ever, and an incision with proper drainage was urgently called for as offering the only chance of saving life. His very feeble pulse, as well as the universal prejudice at present against chloroform, forbade the use of this agent, and ether, apart from the fact that a person suitable as administrator was not available, was contraindicated by the existence of a chronic bronchitis. Under these circumstances the writer determined to use cocaine, and proceeded as follows:

He first applied some ether spray to the part which was to receive the first puncture of the needle, and, having filled a hypodermic syringe with a one-per-cent. solution of cocaine, injected the skin lying in the future track of the knife with it, pushing the piston of the syringe slowly home as the point of the needle traversed the tissues. This injection was made in the meshes of the true skin, and the anæsthetized area measured about two and a half or three inches in length. On withdrawing the needle and waiting for four or five minutes, he was enabled to make a painless incision through the whole thickness of the skin; but on attempting to deepen the wound the patient became sensitive of the knife, which, therefore, was laid aside for the moment and a second injection of cocaine injected into the connective and muscular tissue at the bottom of the cut, having first stopped all oozing of blood (an important point) by the application of a warm sponge. In a few moments he was again enabled to proceed with the dissection in a painless manner, and after a third injection of a few more drops, the operation as at first planned was completed. But on account of a somewhat close approximation of the lower ribs, the opening obtained was not wide enough to carry a drainage-tube of proper size, and the operator decided to remove a piece of the lower rib. This was again done painlessly, after injecting some cocaine under the periosteum. The total quantity used amounted to a little over one grain.—ALTMANN, *Australian Medical Gazette*, May 15, 1894.

LEGUMINE AS A SUBSTITUTE FOR A MILK DIET.

BOVET (*Bull. Génèr. de Thérapeutique*, May 30, 1894) relates four cases of gastric disorders in which a milk diet was not well borne, and where the administration of *legumine* gave satisfactory results. This remedy was prescribed in as high doses as 16 drachms a day, in the case of adults. To one patient it was given for three months, to the exclusion of all other articles of food, during which time the individual gained four pounds in bodily weight. According to the author and MARINES, who has made a special study of the subject, legumine is not only a medicament, but a food, owing to the phosphated and albuminoid elements which it contains.

HOME-MADE BEEF-POWDER AND HOW TO PREPARE IT.

DR. WILLIAM R. HUGGARD (Davos Platz, Switzerland) writes in the *British Medical Journal* of June 9, 1894: Some of the beef-

powders in the market smell and taste of the chemist's shop, and are not readily taken by an invalid whose palate requires to be coaxed. A happy idea struck the writer several months ago that beef-powder might without difficulty be prepared fresh and on a small scale by any ordinary cook. The experiment was made, and the result was satisfactory beyond expectation. Beef-powder made at home is appetizing, has a delicate aroma and flavor, and can be taken with pleasure by invalids who turn with aversion from ordinary food. If a little pepsin be taken at the same time, it is digested even when the ordinary peptonized foods are not retained. The mode of preparation is simple. Lean beef is cut into small pieces; these are put into boiling fat, dripping, or butter for a couple of minutes until the surface is browned. They are then removed from the fat and placed on a strainer for a few moments. Afterwards they are placed in a mincing-machine. The resulting mince is placed in a slow oven and dried. The drying process may take from five to twenty-four hours, or even longer, according to the heat employed. When thoroughly dried, the meat is quite crisp, and can be ground in a coffee-mill that has not been used for any other purpose. In the drying process the meat loses a trifle more than four-fifths of its weight. This beef-powder can be taken in various ways,—with hot water or soup, with mashed potatoes, with bread and butter in a sandwich, or with a little pepsin in a starch wafer. The writer has given this home-made beef-powder with such excellent effect in several cases where there was much difficulty with food that he thinks others may find it useful.

Beef-powder, carefully prepared according to the directions above given, has an agreeable flavor, and admits of being used like potted meat by persons of delicate or fanciful appetite. By regulating the heat applied in making the powder, the albuminous constituents need not be coagulated, but merely dried, and the digestibility of the powder would then be increased; in any case, the finely-divided condition would facilitate digestion. A very good beef-tea may be made from the powder by infusing it in moderately hot water. For the preservation of the powder it would be necessary to keep it from contact with atmospheric air and to avoid the access of mites or similar deteriorating influences.

THE TREATMENT OF MYELITIS.

In the issue of *La Tribune Médicale* for June 7, 1894, the following advice is given: In acute myelitis, absolute rest in bed, the application of counter-irritation to the spine, and for the first eight days of benzonaphthol. After the eighth day two pills, made up according to the following prescription:

℞ Ergotin, gr. i;
Capsicum, gr. ss;
Powdered licorice, sufficient quantity.

In chronic myelitis, apply for a week or more active counter-irritation to the spine and a dessertspoonful of the following mixture internally:

℞ Iodide of strontium,
Iodide of potassium, of each, ʒiiss;
Glycerin, ℥i;
Syrup of orange, ℥iv.

After this has been given for from three weeks to a month, use the following pill:

℞ Nitrate of silver, gr. ½;
Powdered licorice, sufficient quantity.

Every morning cold douches should be applied to the body, composed of alcohol and water, and a constant current of electricity should be applied to the spine.

BROMOFORM IN THE TREATMENT OF WHOOPING-COUGH.

CARPENTER, in the *Polyclinic* of June 16, 1894, writes on bromoform. He says that bromoform is a colorless liquid produced by the action of bromine upon alcohol in the presence of an alkali. In practice, milk of lime is saturated with bromine, then alcohol is added and the mixture distilled. It is also prepared now by the action of sodium hypobromite upon acetone by a reaction analogous to that used in the manufacture of chloroform. Bromoform should be prescribed in colored bottles, as it is not a stable preparation, and if exposed to the air it volatilizes. When exposed to heat or light it is gradually decomposed, becoming a brownish-red, due to the free bromine which is liberated. Bromoform is slowly eliminated by the kidneys.

The good effect of the drug in whooping-cough is partly, at least, due to its acting as a local anæsthetic upon the pharyngo-laryngeal mucous membrane. Some writers have gone so far as to claim specific properties for the drug. It certainly does moderate the violence of the individual paroxysms, diminishing their severity and frequency, often stopping the vomiting in twenty-four hours, and in many cases it shortens the duration of the disease.

Bad effects have rarely been seen, and never

from small doses. Small doses in some cases have failed to be of service, while large ones have made the child stupid and sleepy. In a few cases, where the child had received a larger dose than had been prescribed, narcosis was produced, but the patient was readily revived. The symptoms of poisoning have been pallor, staggering, dilatation of the pupil, coma, heart-failure, and collapse.

Bromoform is given in 1- to 5-drop doses three or four times daily, a child of one year receiving 1 to 2 drops three times a day; a child from two to four years, 2 to 4 drops three or four times a day; a child from five to eight should receive 4 to 5 drops four times daily, according to the number and frequency of the attacks. Bromoform is difficult to drop. It is usually given dropped on sugar or in water; care must be taken that the pearly drops floating about in the water are swallowed.

When we cannot trust the attendant to drop the medicine, it may be given in the following manner:

℞ Bromoform, ♏xlviii;
Alcohol, fʒiv;
Tr. cardamomi comp., q. s. ad fʒiii. M.
Sig.—ʒi t. d. in water.

If the administration of the drug be discontinued too soon, relapses may occur.

THE ACTION OF CHLOROFORM ON THE CARDIAC RHYTHM.

It was shown by the Hyderabad Chloroform Commission that the rapid temporary fall of blood-pressure which often occurs when chloroform is suddenly administered is due to a reflex slowing or inhibition of the heart through the vagus nerves. J. G. MacWilliam (Prov. Royal Soc., vol. liii.) has worked out the way in which chloroform brings about this and other variations in the cardiac rhythm. He finds, in cats and rabbits, the same two stages in the effect of chloroform on the cardiac rhythm as is observed in man,—namely, a stage of acceleration followed by a stage of slowing. These two stages are still manifest after the accelerator nerves are divided. The acceleration, therefore, is not due to impulses reaching the heart by the accelerator nerves. After the vagus nerves are divided, with or without the division of the accelerators as well, the rapid heart-beat consequent on the removal of the restraining action of the vagi can still be slowed down by the action of chloroform, but this is not preceded by any further quickening. The stage of acceleration is, therefore, due to the chloroform more or less paralyzing the inhibitory action of the vagi. That slowing is produced after the vagi are divided, although it is not so great as when they are intact, shows that the slowing is not entirely due to a stimulation, reflex or direct, of the cardio-inhibitory centre. It is further shown that the slowing is not due to the stimulation of the local inhibitory mechanism of the heart, for the administration of atropine, which paralyzes this mechanism, does not prevent the slowing being produced by chloroform. MacWilliam's researches, therefore, give additional proof of the direct action of chloroform on the heart. He concludes this part of his work with these words: "It appears that chloroform acts on the heart and distinctly slows its rate of beat through a depressing or retarding influence exerted on the intrinsic rhythmic mechanism of the organ." In the remaining part of the paper the relation of the rate of beat to the blood-pressure and the influence of the direct and reflex stimulation of the cardiac nerves is discussed. Reflex acceleration is not due to impulses reaching the heart by the accelerator nerves, for it may be readily obtained after they are divided, provided that the vagus nerves are intact. Muscular exertion causes acceleration of the heart, partly by diminishing the influence of the vagi. Animals with great running and staying powers have a slow pulse, usually markedly restrained by the cardio-inhibitory centre, and so capable of rapid acceleration by inhibition of that centre. This is strikingly seen when the effects of the division of the vagi in the rabbit and the hare are compared. In the rabbit, removal of the vagus influence produces but little change in the rate of beat, while in the hare the pulse may rise from 64 to 264, showing the marked action of the cardio-inhibitory centre, and consequent power of rapid acceleration of the heart in the latter.—*British Medical Journal*, June 2, 1894.

THE TREATMENT OF INFANTILE PALSY.

During the febrile period we are to combat the fever by using 2 to 4 teaspoonfuls of the following mixture:

℞ Hydrochlorate of quinine, gr. viii;
Syrup, ʒi;
Peppermint water, ʒiii.

Wrap the lower extremities of the child in moderately strong mustard-plasters.

In the paralytic variety we should apply every day a feeble continuous current of four to five milliampères along the vertebral column,

and this should be allowed to pass for ten or twenty minutes. The small doses of iodides may be given internally. Morning and night frictions and massage should be applied to the paralyzed muscles with saline douches, both hot and cold. Passive gymnastic exercises should be carried out, and care should be taken that by means of this exercise deformities are avoided. As the treatment progresses it is well to administer the lacto-phosphates.—*La Tribune Médicale*, June 17, 1894.

BONE-MARROW IN THE TREATMENT OF PERNICIOUS ANÆMIA.

FRASER, of Edinburgh, writes on this subject in the *British Medical Journal* of June 2, 1894, and, although this communication deals with only one case of pernicious anæmia treated with bone-marrow, the reputation of the writer and the curative effect seems sufficiently evident to justify its publication, especially as an opportunity occurred for testing in it the value of the chief remedies hitherto used in the treatment of this disease.

The patient—A. R., a gardener, sixty years of age—entered the Royal Infirmary on September 30, 1893. His symptoms were frequent vomiting and diarrhœa, œdema of the feet and ankles, moderate and irregular pyrexia, dimness of vision, retinal hemorrhages, anorexia, dyspnœa, and, latterly, complete prostration. The illness had existed for about four months.

Although the author was desirous to treat this patient at once with bone-marrow, the condition was so serious a one that, in the absence of experience regarding the therapeutic value of bone-marrow, he considered it advisable to administer, in the first instance, some of the remedies usually employed in pernicious anæmia. Only after they had failed in producing benefit was bone-marrow given.

For the sake of brevity the history of the patient is divided into eight periods, which correspond with the treatment adopted in each period.

First period, two weeks; no medicinal treatment. During this period the hæmocytes of the blood varied from 1,860,000 to 1,460,000 per cubic millimetre, and the hæmoglobin from twenty-eight to thirty per cent., the specific gravity being 1038. There was great distortion in the shape and variation in the size of the hæmocytes, which did not form rouleaux. Retinal hemorrhages were present in both eyes.

Second period, two and a half weeks; ferrous chloride, 6 to 12 grains daily. The hæmocytes and hæmoglobin steadily fell to 900,000 per cubic millimetre and twenty per cent. respectively, and the specific gravity to 1036.

Third period, eight days; arsenic (15 to 30 minims of liquor arsenicalis daily) was given, in addition to 12 grains of ferrous chloride, daily. Still further deterioration occurred in the hæmocytes and hæmoglobin, the former falling to only 843,000, and the latter to eighteen per cent., but the specific gravity remained at 1036.

Fourth period, three weeks; arsenic and iron were contined in the above doses, but ox-bone-marrow was now also given by the mouth, uncooked and in the quantity of 3 ounces, daily.

An almost immediate improvement occurred, so that at the end of this period the hæmocytes numbered 1,800,000, the hæmoglobin amounted to thirty-five per cent., and the specific gravity was 1042. The patient now began to recover strength; he could remain out of bed for several hours each day, and the appetite was greatly improved.

Fifth period, twenty-six days; ox-bone-marrow, arsenic, and salol (15 to 30 grains daily). The improvement was continued. The hæmocytes rose to 2,470,000, the hæmoglobin to fifty-five per cent., and the specific gravity to 1047. The patient felt much stronger, and his complexion was distinctly pink and had almost entirely lost its originally yellow hue. He had also gained in weight.

Sixth period, thirty-two days; ox- and calf-bone-marrow and salol (30 grains daily).

The improvement was still further continued, so that the hæmocytes reached an absolute maximum of 4,130,000, though they afterwards fell to 3,400,000; the hæmoglobin rose with the hæmocytes to seventy-five per cent. and also fell to seventy per cent., and the specific gravity became 1058. The blood had now a healthy appearance. It could flow readily from a small puncture, it formed fairly good rouleaux, and the red cells were more uniform in size and fewer of them were distorted.

The patient was now able to do light work in the ward without fatigue; the alimentary system was perfectly healthy; œdema, pains, headache, pyrexia, and the venous bruits in the neck had disappeared, and the skin had a healthy appearance.

Seventh period, one month; ox- and calf-bone-marrow and ferrous chloride (6 to 12 grains daily). The hæmocytes remained, with some oscillations, at about 3,400,000; the hæmoglobin averaged from seventy to seventy-five per cent., on one occasion reaching eighty per cent., and the specific gravity remained steadily at 1059.

The patient felt strong and enjoyed assisting in ward work, such as carrying coal up a long flight of stairs. He remained out of bed all day, there were no subjective symptoms even on considerable exertion, and "hæmic" venous and cardiac bruits were no longer audible. Ophthalmoscopic examination of the eyes showed that all traces of retinal hemorrhage had disappeared.

Eighth period, not concluded when this paper was communicated to the Congress; ox-bone-marrow, iron, and salol. The improvement was maintained, so that the hæmocytes reached 4,000,000, the hæmoglobin eighty-five per cent., and the specific gravity 1060. The patient was now practically in a normal condition. His appetite was good and his appearance that of a healthy man.

An examination of the graphic representation of the progress of the case shows that no benefit was obtained—that, indeed, deterioration occurred—during the prolonged administration of iron and arsenic in both medium and large doses, but that the remarkable improvement which occurred was produced only after the administration of bone-marrow had been commenced, while it continued to be produced during periods in which neither arsenic nor iron were being administered.

The demonstration of a curative influence by bone-marrow may appear to be somewhat obscured by the introduction of salol into the treatment, and a further examination of the therapeutic value of this substance in pernicious anæmia appears, indeed, to be suggested. The introduction of salol was due to the urgency of the case requiring that no description of treatment should be neglected in whose favor any theoretical or experimental evidence had been advanced. Since, however, this communication had been made to the International Medical Congress, the patient was treated with only bone-marrow for a period of twenty-seven days (period ten), and the improvement was well maintained to the end of this period.

He was discharged from the hospital because of his urgent wish to return to work as a gardener, for which he declared himself more able than he had been for the last five or six years; and, to use his own expression, he felt "as if he had been made over again." On the day when he left the hospital (May 19, 1894) the hæmocytes numbered 3,900,000 per cubic millimetre, the hæmoglobin was seventy-eight per cent., and the specific gravity 1058; the hæmocytes were nearly uniform in size, only a few of them showed slight "tailing" and no megalocytes were present; there was no excess of leucocytes or of blood-plates, and good rouleaux were formed on the microscopic slide.

It may be worthy of note that before medicinal treatment had been commenced, and in the earlier periods of treatment when the patient was receiving large doses of iron and arsenic, the blood-plates were conspicuously deficient in number; while soon after the administration of bone-marrow had been commenced a great increase occurred in their number, which was followed by a reduction to a moderate number during the later periods when the blood had been restored to a nearly normal condition.

The frequent failure of therapeutic measures in pernicious anæmia confers an interest upon any remedy which appears capable of controlling this malignant disease, even although the evidence is derived from one case only, and notwithstanding the circumstance that temporary improvement occasionally, though very rarely, appears to occur spontaneously. The facts now stated appear to justify the hope that bone-marrow will be found to have a remedial value in some, at least, of the cases of pernicious anæmia.

TINCTURA FERRI CHLORIDI IN TYPHOID FEVER.

In the *International Medical Magazine* for June 1, 1894, is an article on this subject by McNutt.

Many and various are the remedies that have been and are being used in the treatment of typhoid fever. It is not the intention of this abstract to discuss the hygienic and antipyretic treatment of this affection. The tincture of iron is useful for the gastro-intestinal condition, for its surface intestinal antipyretic action. It might be well to say, however, that antipyretics are used much too freely in typhoid, and greatly to the detriment of the patient. Too many practitioners are governed in the treatment by the thermometer. Better not use the thermometer at all in typhoid than to be steadily and surely beating the life out of the patient in vain efforts to break down the fever.

Typhoid fever is not a frequent disease in San Francisco, and consequently the number of cases that the physician is called upon to treat is not large; still, scarcely a year passes but every physician in San Francisco who has a large family practice meets with a few cases. In the course of twenty-five years the writer had an opportunity of trying all the so-called gastro-intestinal remedies, such as turpentine,

bismuth, salicylic and mineral acids, nitrate of silver, iodoform, copper, zinc, etc. For the past four years he has been in the habit of administering tinctura ferri chloridi in glycerin and water in nearly all these cases of typhoid fever, 10 to 30 drops every two to four hours.

McNutt's practice has been to commence the administration of iron as soon as positive indications of typhoid are recognized. The result of his experience is, that the tincture of iron is the most reliable of all gastro-intestinal remedies and much more efficient than the muriatic acid without the iron. It certainly exerts a beneficial influence on the mucous membrane by its astringent and tonic properties, limiting the hyperæmia, and consequently the exudations and tendency to ulceration and to hemorrhage. Besides the beneficial influences of tincture of iron on the mucous membrane of the digestive tract, it certainly has a sustaining influence, by acting as a blood food, in preventing waste of tissue, when there is very considerable diarrhœa or dry brown tongue, which is not often the case when the iron is given freely. $\frac{1}{80}$ to $\frac{1}{100}$ grain of bichloride of mercury to each dose is frequently useful, when the gastric symptoms are prominent, or liquor acidi arseniosi, 1 or 2 drops, sometimes adding both with benefit.

THE PREPARATION OF THE FINGERS AND NAILS FOR SURGICAL OPERATIONS.

ALLIS (*Maryland Medical Journal*, July 21, 1894) thus discusses the finger-nails from the stand-point of the operative surgeon:

The nails form no mean part of a surgeon's outfit. As a covering to the end of the finger they give confidence; in the threading of needles they are often indispensable; while often, when working among adhesions, they may serve a good turn. If the nails are too long, they are in the way, and if too short, a privation. A medium length of nail is an exceedingly valuable helper at times. With some the length of nail is governed by the ability to keep it clean; hence the nail is kept very short, much to the disadvantage of prehension, in which man excels.

The surgical care of the nails has had its full share of attention. The nail-brush forms a part of every physician's and surgeon's outfit. It is cheap, compact, and moderately thorough. Its disadvantages are, that if stiff, it is apt to scratch the hand or cut beneath the nails; if soft, it is of little value. To supplement the defects of the brush, some persist in using the point of the nail-blade of their pocket-knives. The writer says persist in using, as much has been written against the practice. Not only is there danger of cutting the flesh beneath the nail, but it leaves the under surface of the nail rough, making it a ready collector of filth, and less easily cleaned for a subsequent operation.

To avoid the knife he uses a little wedge-shaped piece of soft pine. This, when wet, frays up, makes a kind of mop, is a good carrier of soap, and enables the user to wash out under the nail. The objection to this device is that the pine rapidly frays out, becomes bulky, and requires frequent trimming. Therefore the author employs a rubber eraser. A variety is made for artists and school-children that is wedge-shaped. This is ready for use as it is found at the stationer's, though if made a little sharper it is softer and more like a mop. It is pliable, soft, and an excellent carrier of soap. For the hand, generally the old-fashioned wash-rag cannot be improved upon. It is a good carrier of soap, and with it each finger in turn can be tightly caught and wrung until clean. With the nail- or hand-brush only the back and front of the fingers get the scrubbing.

In addition to the implements usually deemed important for the cleanliness of the under surface of the nails, a very valuable one is the nail itself. Noticing that a young lady's finger's whom he frequently met were always exceedingly neat, the writer made bold to ask her methods, and learned that she had nothing more modern than a pair of scissors to trim her nails, and that with wash-rag and the tips of her finger-nails she kept her hands in most perfect order. One thing that may be said of the finger-nail as a nail-cleansing instrument is, that it will not scratch the under surface of the nail, a very important factor in the process, whether one aims at beauty or cleanliness.

PERSONAL EXPERIENCE IN THE TREATMENT OF STRANGULATED HERNIA.

ASHHURST (*Kansas City Medical Index*, July, 1894) states that he has operated on twenty-one cases of hernia, nineteen of which were strangulated. He has reduced by taxis a number equal to that operated on. He holds that the comparatively small number of cases which he has to report shows that strangulated hernia is a rare affection in Philadelphia. Fourteen of the operations were for strangulated inguinal hernia; one case disappeared; of the remaining thirteen, ten recovered. Of the four strangulated femoral hernias, three recovered. The single strangulated umbilical hernia died. None

of the deaths were directly traceable to operation. In regard to the limitations of taxis, Ashhurst holds that this means of reduction should be the first, though in the hands of the inexperienced practitioner it is an unsafe procedure. Under such circumstances he believes the patient will sometimes be safer with the operation of herniotomy than with taxis. When taxis is employed, the neck of the sac is grasped by the thumb and fingers of one hand, while the other hand, spread out, exercises a combination of pushing and squeezing; and then by a kind of alternating movement, slightly relaxing one hand, while with the other the pressure is increased, if the hernia is reducible at all, it will go up. If no gurgling is heard in a few minutes, it is not likely that taxis will succeed.

As for aids in taxis, the hernia may be drawn down a little before beginning the upward pushing movements. In the Pennsylvania Hospital the practice is to put the patient in bed, apply ice over the hernia, and give a moderate quantity of opium. When the resident physician is not able to reduce the hernia by gentle taxis, this course is followed until the surgeon has been summoned. If slight manipulation on the part of the surgeon fails, ether is administered and taxis again employed in the ordinary manner, usually with success. If the hernia cannot be reduced, operation is resorted to, an understanding being had to this effect before etherization. When herniotomy is performed, Ashhurst follows the rule that where it is justifiable to resort to taxis, it is proper to endeavor to reduce the hernia without opening the sac. Frequently, the constriction being in the neck of the sac, it requires opening. In making the deep incision the tip of the left forefinger should be pressed against the source of constriction and the hernia-knife passed flatwise; this is then turned in the proper direction and the deep incision made with a gentle sawing motion, assisted by pressure of the finger below. In inguinal hernia the incision should be directly upward. In femoral hernia the deep incision should be made upward and inward, the hernia-knife being blunted by rubbing it on the handle of another knife. After operation the patient is put on the use of opium and belladonna for a few days, in gradually diminishing dose. Usually the bowels move spontaneously in five or six days.

REMOVAL OF THE TONGUE FOR CANCER.

BUTLIN (*International Journal of Surgery*, July, 1894) reports a series of forty-six consecutive cases in which at least half the tongue was removed for cancer, with but one fatal result. The great majority of the operations were not complicated by removal of the lymphatic glands or ligature of the lingual artery. Nineteen of the patients were above sixty years of age, and some were suffering from organic disease of internal organs. All the operations were performed by Whitehead's method,—that is, a ligature is passed through the end of the tongue; this is drawn forward and loosened from before backward by small snips with a pair of long scissors. When the disease is situated wholly at the base of the tongue the lingual arteries are tied. Iodoform applied to the mouth by means of an applicator is best calculated to keep the wound in an aseptic condition. Wound secretions are prevented from gravitating into the air-vessels by keeping the patient's head low and letting him lie well over from the side from which the tongue has been removed. The feeding of these patients needs great attention. When not more than two-thirds of the organ has been removed, liquids can generally be taken on the day following the operation from a feeder with a spout, provided a piece of india-rubber tubing three or four inches long be fixed on the spout. If the right half of the tongue has been removed, the patient should lie over on the left side during feeding, so that the food is kept as far as possible from the wound, and passes over the parts which have been least interfered with.

When the whole of the tongue has been removed, the difficulty of swallowing is much greater, and many days may elapse before the patient acquires the knack of swallowing liquids without permitting a small quantity to pass down the air-tubes. During the first forty-eight hours these patients are fed through the rectum with nutrient enemata. At the end of that period the patient is allowed to make a first attempt to swallow a little liquid, and water is chosen for the experiment, because the entrance of a little water into the trachea is seldom followed by any serious consequences. Milk and beef-tea are more dangerous; they hang about the air-tubes, are difficult to get rid of, and are very prone to undergo rapid decomposition and occasion the much-dreaded swallowing pneumonia. If the experiment is successful, other liquids may be tried, and the problem of feeding is really overcome; but if there is any difficulty, the patient is fed as long as may be necessary through a tube. Butlin believes no instrument is so good for this purpose as a black bulbous catheter, about No. 9 or 10, attached to a long piece of india-rubber

tubing, to the other end of which a small glass funnel is fixed.

The throat is first sprayed with a three- or four-per-cent. solution of cocaine; the tubing is clamped with forceps just above the attachment of the catheter, and the funnel and tubing are filled down to the clamp forceps with warm food. The catheter is very gently passed down the pharynx, and hitches at the posterior border of the larynx. The patient is directed to swallow, and as he does so the catheter is easily passed on into the œsophagus. For the moment discomfort is created, and the patient often struggles. He is directed to close his mouth, and no attempt is made to pass the catheter farther down for half a minute or longer. Then it is slowly and gently passed down to a distance of about eleven inches from the teeth. When the annoyance of the presence of the catheter has ceased, the clamp is removed and the food is allowed to run slowly down into the stomach. If there is an inclination to regurgitation or to cough, the descent of liquid is instantly arrested by pressing on the tubing with the finger and thumb, and the nurse lowers the funnel until the dangerous moment has passed. By attention to these details a pint or a pint and a half of liquid may easily be introduced into the stomach without danger. Before removing the catheter the funnel is raised high up, so as to get rid of the contents of the tube, and during the actual removal of the catheter the tubing is kept tightly pressed between the finger and thumb in order to prevent the entrance of even a few drops into the larynx. When the feeding is carefully carried out according to these directions, Butlin has patients so satisfied with it that they have sometimes insisted on being fed through a tube for a much longer period than the writer deems necessary.

THE EARLY TREATMENT OF GONORRHŒA.

After treating gonorrhœa for many years with silver solutions, Dr. von Sehlen (*Monatshefte für Praktische Dermatologie*, June, 1894) formulates his experience in the following way: The duration of treatment depends upon the length of time of infection before handling the case; therefore the applications must be made as early as possible. In favorable cases, when the infection is not longer than four days, the case should be cured in one day.

In case of infection lasting eight days before treatment, three to six days are necessary for a cure; infection of eight to fourteen days requires twenty days and upward.

The early treatment retards the progress of the disease along the urethra and lessens the course of the trouble, even when the gonococcus persists.

Despite the disappearance of the cocci, recurrence is not impossible, and careful watchfulness on the part of the patient is necessary while the gonococcus, through the silver applications, loses its growing energy.

In fresh cases, up to the third or fourth day after the infection, strong solutions (from one-fourth to one per cent.) of silver nitrate can be injected by means of the usual small syringe; the meatus being tightly held and the urethra being rubbed backward and forward, the solution reaches all the urethral mucous membrane. This is repeated until the mucous membranes are seen to be coated white with the silver precipitate, while the fossa receives a special application of a two-per-cent. solution, and is coated with europhen powder, which proves a good protector.

In cases of longer standing than four days, he applies, by means of the two-way catheter, feeble solutions (from .1 to 1 pro mille) in distilled water, warmed to the body temperature. The urethra soon becomes accustomed to stronger solutions, and after a few days the solution may be increased from one-fourth to one per cent, which can then be applied by means of the syringe.

TRIKRESOL AS AN ANTISEPTIC.

This antiseptic is a clear, colorless liquid three times as powerful as carbolic acid. It is cheap, makes a clear solution, does not corrode instruments, and neither makes the hands of the operator slippery like lysol nor numb like carbolic-acid solutions.—*International Journal of Surgery*, vol. vii., No. 3.

TREATMENT OF CEREBRAL HEMORRHAGE.

Apoplexy.—1. Loosen all tight linen; lay the patient down, with head a trifle elevated. Wrap the patient's arms and legs with sinapisms. Place a bag of ice under the patient's head. Vigorously rub the body with camphorated alcohol.

2. Administer the following purgative:

℞ Sodii sulphatis, ℥v;
Sennæ (folliculis), ʒiiss;
Aquæ bouillant., f℥xiiiss.
Make an infusion and strain.

3. If the pulse is not too feeble, give as soon as possible a hypodermic of a solution of ergotin (Dusort) containing fifteen grains.

4. If there is too much excitement, give two tablespoonfuls of,—

℞ Potassii bromidi,
Strontii bromidi,
Sodii bromidi, of each, ʒi, gr. xv;
Glycerini, fʒiss;
Syrupus aurantii corticis, fʒviss.

5. If the heart and pulse grow feeble, give from 1 to 5 hypodermics of sulphuric ether in the twenty-four hours.

6. Continue this treatment throughout the attack,—sometimes lasting several days,—and support the patient with milk and beef-tea, taken in small amounts.

Period of Paralysis.—1. Watch carefully the patient's mode of living; allow him to eat little at evening; food mostly vegetables, milk, eggs, soups, little meat; no alcohol or tobacco; no intellectual fatigue. Each morning sponge-bath of alcohol and water, followed by frictions with flannel. Watch carefully all pressure-points for bed-sores; order a water-bed, and dust the spots with a powder of cinchona and starch.

2. Maintain a loose condition of the bowels, and give the following pill every eight days:

℞ Aloes, gr. iiss;
Rhubarb, gr. ivss.
M. et div. in pil. No. 20.

3. Take during twenty days of the month a tablespoonful of the following solution in a glass of milk:

℞ Strontii iodi, ʒiiss;
Sodii arsenitis, gr. iss;
Aquæ destillatæ, fʒixss.

4. Do not practise electro-therapy during the first months of the paralysis, but maintain massage regularly afterwards; commence with a feeble continuous current daily for twenty minutes.

Prophylaxis.—1. Those predisposed are counselled to rest in bed, without sleeping, after meals.

2. Upon rising sponge lightly with alcohol and water, with dry frictions afterwards and a short walk without fatigue.

3. Avoid sudden changes of temperature; intellectual fatigue or violent emotions.

4. Substantial but light food, white meats, fish, eggs, vegetables, fruits, but little dark meats; no alcohols; no shell-fish; don't rest too long at the table in a heated room, and take a walk after each meal.

5. Maintain regularity of the bowels, if necessary by means of salts.

6. During fifteen days per month take in a cup of milk a spoonful of the following:

℞ Potassii iodi,
Potassii bromidi, of each, ʒi;
Aquæ destillatæ, fʒixss.

—*La Tribune Médicale*, June 21, 1894.

TREATMENT OF LEG ULCERS.

DIVER (*Medical Press and Circular*, quoted by the *Universal Medical Journal*, July, 1894) treats leg ulcers by means of chlorine gas. This is generated by pouring two drachms of potassium chlorate and one drachm of hydrochloric acid into a jar, the outside of which is covered with brown paper. After this a disk of white paper is introduced, and on top of the paper sufficient absorbent wool. A large cork is then fitted to the neck of the jar. The wool—yellowish-green on the surface when first exposed to view—is placed over the ulcer and quickly covered by gutta-percha tissue, kept in place by the ordinary bandages. The author reports rapid healing of chronic ulcers by this method.

RETAINED TESTIS.

KEETLEY (*Lancet*, quoted by the *Universal Medical Journal*, July, 1894) thus operates for retained testicles. After thoroughly freeing the gland from its fibrous attachments to the inguinal canal, it is brought down, and two skin wounds being cut in the scrotum and neighboring parts of the thigh respectively, these wounds, and some of the fibrous tissue always found attached to the testis or epididymis are sutured together, the sutures piercing the tunica vaginalis. The author has just operated upon two cases. In one the testicle distinctly grew after it was brought into its normal position.

CYSTICO-LITHECTOMY.

After seventy-seven operations upon the gall-bladder, in twenty-six of which he found impacted stones in the ductus cysticus, HANS KEHR (*Berliner Klinische Wochenschrift*, June 4 and 11, 1894) proposes incision of the cystic duct in all cases of impaction.

Formerly he performed the ordinary cystotomy, leaving a biliary fistula. After the lapse of a few months, when only mucus was escaping, he sounded this fistula, discovered a stone obstructing the backward flow of bile,

performed a second laparotomy, incised the duct, removed the stone, passed a drainage-tube through the duct,—now patulous,—and sewed the incision.

This plan he found open to the objection necessarily raised against a second laparotomy; also the sounding of the duct is not in all cases satisfactory nor safe. As a result of his varied experiences he has adopted the following plan:

Through a four-inch incision in the right rectus muscle he inserts his right hand, breaking gently all adhesions until the cystic duct is reached. He then searches for and finds the stone, and then endeavors to force it back into the gall-bladder, pursuing the method of Lauenstein. Standing on the patient's right side, the operator turns his back to the patient's face; then bending forward, he inserts the left hand into the abdominal opening and endeavors to force the stone from its impacted position. This seemingly clumsy position is, as a matter of fact, of the greatest value in this manipulation. This manœuvre, however, failing, the gall-bladder is aspirated of as much of its contents as possible by puncture at the fundus, flat sponges are inserted to catch any remaining bile, the bladder is incised, the wound edges being held up by forceps, and the cavity of the bladder is cleaned by repeated packing with gauze.

The right hand now grasps the stone, the left index finger is passed into the bladder (a sound or forceps may also be tried), and by the combined manipulation an endeavor is made to move the stone in a backward direction. This plan failing, the bladder is sewn to the wound, and further proceedings arrested until swelling of the mucous membranes forces the stone into view; sometimes even then the finger or spoon or forceps are required for its removal.

If, however, he finds the stone very large or strongly embedded, he proceeds at once to the incision of the ductus cysticus over the point of impaction. The bile and stone are at once removed, drainage inserted, and the incision sewed together with fine silk and a curved needle. To facilitate this, he passes two loops of silk through the edges of the wound, and then, by further holding apart of the abdominal wound, lifting of the overlapping lobe of the liver, and tension on the two silk loops, the suture of the duct is much facilitated. He especially avoids sewing the mucous surface or including too much of the serous coat. The bladder is packed as before, and after the expiration of some time, both tube and packing being removed, and finding the duct patulous, he closes the external fistula.

TREATMENT OF COLLES FRACTURE.

DOYLE (*International Journal of Surgery*, July, 1894) advocates an ingenious, simple, and easily-constructed splint for the treatment of Colles fracture. Two or three thicknesses of cloth or flannel may be cut to the proper shape. These are then dipped in plaster-of-Paris cream and secured by a roller to the normal arm with the hand flexed slightly. After the plaster has set, it is removed and allowed to thoroughly dry. The fractured arm, which has been in the mean time reduced and dressed, is placed in this anatomically-made splint, which readily retains the bones in their normal position by the aid of a roller bandage, smoothly but not tightly applied, no posterior splint being required.

TECHNIQUE OF MAJOR AMPUTATIONS.

CREDE (*Medical Press and Circular*, quoted by the *Universal Medical Journal*, July, 1894) attaches little importance to the Esmarch bandage, avoiding a number of ligatures by doing without it. The form of the flap is also a secondary matter. The important point is to cut a flap lined with a thick muscular layer, as the muscles have a tendency to undergo ultimate retraction. He uses neither drainage nor suture, the edges of the flap being approximated by a gauze bandage applied directly to the stump in such a way as to make slight compression. In twenty-two cases thus operated on, all did well, two-thirds healing by first intention. In the other one-third, small areas of suppuration prevented rapid recovery, but in no case was there separation of the wound, as occurs frequently when the flap consists of skin only.

Gussenbauer is also in favor of abandoning drainage, but holds that only by sutures can exact approximation of tissues be obtained.

DR. HERON WATSON'S METHOD OF EXCISING THE WRIST-JOINT.

By this method the knife is entered about one and a half inches above the styloid process of the ulna, towards the palmar aspect, and carried down to the metatarsal bone of the little finger and a short distance along it. An incision of about three inches in length is thus made down to the bone. The lower end of the ulna is then cleared and fully an inch of it removed. The carpus is then exposed and removed piece by piece, the trapezium only being left. The heads of the metatarsal bones can then be dealt with by gouge or saw, being turned out of the wound if necessary. Next

the end of the radius is turned out, which can be quite easily done, and sawn off. Last of all the trapezium is examined, and removed if necessary. Each step in the operation is very easy and very satisfactory. After removal of the necessary amount of diseased bone, very few vessels require to be ligated. Sometimes one at the radial side of the wound is rather difficult to secure; but as the wound can be turned almost inside out by shoving the thumb in like the finger of a glove, no great difficulty should really be experienced.

MILLER (*Edinburgh Medical Journal*, August, 1894) advises as an after-dressing packing with iodoform gauze, which should be diminished in amount with each dressing. The hand and forearm should, of course, be kept at rest on a splint. Passive movement should be commenced not later than a week after the operation. The joints that are most likely to be stiff are the metacarpo-phalangeal, but these are generally very rigid before the operation is performed. They should be freely flexed and extended, as a preliminary step to the operation. During the last six years the author has excised the wrist by Dr. Watson's method ten times. In one case subsequent amputation was necessary; in one case amputation was advised, but not submitted to; in three more cases disease returned, necessitating scraping; while in the remaining half of the cases the disease did not return, and a useful hand was obtained. In the three cases that were scraped —one of them twice—a fairly useful hand resulted. An interesting fact in these recorded cases is that eight out of ten cases presented the right hand, which seems to point to trauma as the exciting cause.

The advantages of this method are that only one incision is necessary. Drainage is very efficient, the wound being on the side of the hand which is the lower in the position in which the hand is usually carried. The resulting cicatrix is hardly visible, and therefore the appearance of the hand is fairly natural after recovery. The operation is very easy of performance.

TREATMENT OF CANCER WITH METHYL-BLUE.

VON MOSETIG MOORHOF exhibited a patient suffering from villous cancer of the gall-bladder, treated with pyoktanin internally and locally. He introduced into the examination wound every two days a pencil of methyl-blue, and gave nine and a quarter grains in pills. The treatment resulted in complete cure.

VESICAL PAPILLOMA OF UNUSUAL DURATION.

WEIR records an interesting case of this order occurring in a man of fifty-two. Bleeding had persisted off and on for a period of thirty-seven years. The diagnosis was most satisfactorily made by the employment of Guyon's method,—*i.e.*, the urination of the patient into three glasses, in the last of which the most and freshest blood was found. After washing out the bladder a bimanual examination was made, the catheter being left *in situ*, by which manœuvre fresh blood was pressed out in small quantities through the catheter, or else was washed out of the catheter after it was withdrawn. Cystoscopic examination failed to reveal the existence of the growth. The papilloma, about one inch and a half in length and a quarter of an inch in diameter, and quite fibrous in character, with fringe on its free ends, was situated just above and to the right side of the meatus internus urinarius. The tumor was detected in a very ready manner after the suprapubic section had been made, by the insertion of a large Ferguson's glass vaginal speculum. This idea has been suggested by Fenwick, of London, who used such a speculum as a sort of caisson, even with the bladder more or less filled with water or urine, in which case the speculum was to be passed to the deeper part of the bladder, the imprisoned water soaked or wiped out, and the bladder thus exposed carefully inspected. Weir, however, found it better to wipe out the bladder as well as possible, then introduce the speculum, and sweep it along the walls of the viscus. Through this same speculum the recorder seized the tumor with a forceps and with a curved scissors cut it off, and then with a Paquelin cautery lightly touched its bleeding surface, and finally packed upon the still bleeding wound a wad of iodoform gauze, which was held firmly in position until all hemorrhage ceased.

This operation commands a ready view of the whole of the bladder in its lower and posterior parts, which parts are most affected by growths. It enables one to readily recognize the mouths of the ureter, and to pass into them, if necessary, instruments for their further exploration.

The bladder in this instance, after removal of the tumor, was sewed snugly together and the abdominal wound left open. The patient made a prompt recovery, with a very trifling leakage for eight days, and has remained well. The tumor was a papilloma with a heavy fibrous stroma.

INTERNAL URETHROTOMY FOR STRICTURE.

SCHUMPERT (*Medical Record*, August 11, 1894) discusses the treatment of stricture of the urethra as follows:

It is a popular idea with the majority of the profession (prejudiced by results antedating antisepsis) that the cutting operation should be the last resort; that it should be used when all else has failed. The author gives a record of thirty-nine urethrotomies performed by himself, thirty-five of which were internal, including four impassable; the remaining four were external urethrotomies. The latter were among the first operations on the urethra in his experience; they were two with and two without a guide. He has since become so impressed in favor of the internal operation that he has never returned to the external. His experience with strictures proves that palliative treatment is vain, notwithstanding the patient has been taught to use the bougie himself once or twice a month. The patients neglect this measure. He finds that internal urethrotomy gives the best results and is justifiable in any case occupying the pendulous urethra. His method of operating requires a set of sounds, a bistoury, grooved director, and a set of bulbous bougies or urethrometer; this latter instrument is not essential, though it may often be used very conveniently in locating strictures and testing their extent. Schumpert uses a bistoury which has a perfectly straight shank seven inches long, with a blade extending from its point half an inch back, and presenting not exceeding one-fourth of an inch beyond the front surface of the shank; the back of the blade is exactly on a straight line with the back of the shaft, even to its point. His grooved director is seven inches long and fork-shaped, with the handle of the fork representing the groove of the director and the prongs the handle; it is made of sufficient strength to admit of considerable pressure without bending; the strength of the director, however, must not lie in its back, but sides only, as the back must be thin in order to allow the back of the knife to approach as nearly as possible the roof of the urethra, thus enabling the operator to incise the stricture through its entire diameter. The patient having been placed in the usual position and a stricture diagnosed, if it be meatal, surgeons all agree that it should be cut with a bistoury, and in this locality a director is not indicated; but if it be lower, this latter instrument becomes imperative. With the grooved director and bistoury described all pendulous strictures have fallen in the field of internal urethrotomy and are easily accessible. The penis is held at right angles to the body with the left hand of an assistant, while with his right he holds the director firmly against the urethral roof, with the groove of the director presenting towards the patient's feet, the penis in the mean while being kept somewhat extended. If the stricture be passable, the operator passes the blade of the bistoury down the director until in the locality of the stricture, this point being marked by the thumb and second finger of his left hand, which press gently the sides of the corpora cavernosa; the index finger is held against the spongy body, directing the blade of the knife, which may be plainly felt as it cuts through the stricture, first in front, then on either side. If the stricture be impassable, the director is introduced until its blunt end comes in contact with the face of the stricture, the penis being held as before if the coarctation is in the upper pendulous portion; but if it is lower, possibly in the anterior membranous urethra, after the director and knife have been introduced beyond the suspensory ligament, the penis is tilted forward to an angle of about forty-five degrees, the director pressed firmly in the direction of the symphysis pubis and downward until in contact with the stricture; the knife is now pressed well back against the director, then downward until the resisting stricture yields; three incisions are then made as before described. The main points to bear in mind are, to have a reliable assistant, who will hold the penis and director perfectly steady and exactly as directed by the operator, who must himself see to it that the end of the director is in contact with the face of the stricture, that it is in perfect line with the penis, and must be very careful to pass his knife exactly in that line. After-treatment consists in first washing out the urethra with hydrogen peroxide, then injecting copiously with boracic-acid solution; this is done seven or eight times a day, until all discharge ceases. A large sound is introduced once in four or five days for the first month, once a week the second month, once in two weeks the third, and during the next two months twice or three times ought to suffice.

THE OPERATIVE TREATMENT OF RUPTURED URETHRA.

DEANESLY (*Practitioner*, July, 1894) completes a paper with the above title with the following statements:

In all cases where rupture of the urethra has been caused by direct violence, it should be the rule of surgery to perform primary urethror-

rhaphy. Cases not treated in this way almost always result in stricture. This form of stricture is so intractable to all forms of dilatation and division that during the last few years many surgeons have bodily excised the strictured portion and restored the continuity of the canal by suture. Undoubtedly this treatment has much to commend it. The stricture is usually a single one of very limited length and in most cases easily accessible. There is no difficulty in detaching the urethra from the corpora cavernosa sufficiently to allow the approximation of the divided ends. Lastly, the results obtained prove that a urethra of perfectly normal calibre, with no tendency to contract, can be obtained in this way and in no other.

Cases of ruptured urethra complicating fracture of the pelvis are very rarely capable of being dealt with by primary urethrorrhaphy. Indeed, it is not common for these cases to live beyond a few days. As a rule, nothing can be done in the first instance beyond providing against extravasation by perineal section. A secondary urethrorrhaphy might perhaps be possible in some cases after recovery from the fracture.

In conclusion, certain objections should be mentioned which are urged against the performance of urethrorrhaphy. It may be said that it is sometimes impossible to find the proximal end of the urethra, owing to its depth. In cases of rupture by direct violence, the rupture is always in front of the triangular ligament, and in a recent case of this kind no surgeon with a competent and practical knowledge of anatomy could fail to find both ends of the urethra. In cases of fractured pelvis or in secondary cases with tight stricture, perhaps complicated with sinuses and fistulæ, the difficulty may be great, but should not be insuperable. By prolonging the incision backward through a portion or all of the sphincter ani, and by detaching the anterior wall of the rectum, it is quite easy to expose the prostate, or even the base of the bladder. At this point it would always be possible to expose the urethra behind the stricture, and if necessary to open it and pass a sound forward.

Hemorrhage from the injured urethra, especially from the bulb, when this is injured, is generally free enough to somewhat embarrass the operation, but need not be alarming, as it is readily arrested by suturing the urethral wound. Extravasation of urine has often taken place before the case has reached the surgeon's hands. Recorded cases, however, prove that this is no bar to the success of primary urethrorrhaphy, even when twenty-four hours or more have elapsed between the accident and the operation.

Lastly, the risk of producing a permanent fistula is extremely small. In the absence of stricture or some form of obstruction, it is by no means easy to produce a permanent urethral fistula, so great is its tendency to close. Certainly the insignificant risk of fistula is quite outweighed by the very grave risk of stricture when ruptured urethra is treated by ordinary methods.

INCONTINENCE OF URINE AND FÆCES CURED BY CIRCUMCISION.

ROSENBERRY (*Medical Record*, August 11, 1894) reports the case of a child he was called to see with incontinence of urine and fæces. The child seemed to be as healthy as the average four-year-old. In making an examination the reporter discovered an elongated prepuce. The following day the child was anæsthetized and circumcision performed. At the time of the operation a digital examination revealed a patulous anus, with no sign of a sphincter muscle. When complete healing had taken place, the bowel-trouble entirely subsided, but there was still incontinence of urine. Finally, the physician advised atropine tablets, pushed till dryness of the throat was pronounced. The child fully recovered.

PRESCRIPTIONS.

For obstinate thrush in children:

℞ Zinci chloridi, gr. ii;
Aquæ, ʒvi;
Solve.
To be applied locally.

For alopecia areata:

℞ Aceti cantharidis, ʒi;
Unguenti hydrargyri oxidi rubri, ʒi;
Misce et fiat unguentum.
To be applied to the affected parts twice daily.

A pigment for warts:

℞ Acidi salicylici, gr. xv;
Acidi lactici, ♏xv;
Collodii flexilis, ad ʒii.
Misce et fiat pigmentum.
To be applied morning and evening.

A cooling lotion for pruritus:

℞ Liquoris ammonii acetatis, ʒii;
Acidi hydrocyanici diluti, ʒi;
Spiritus rectificati, ʒiii;
Aquæ rosæ, ad ʒviii.
To be applied locally.

—*Practitioner*, July, 1894.

ICHTHYOL IN GYNÆCOLOGY.

STORER (*Boston Medical and Surgical Journal*, August 2, 1894) concludes an article on this subject as follows:

While ichthyol is by no means the gynæcological panacea that some observers have claimed it to be, still, it has sufficiently approved value to deserve a very high place in our list of remedies.

While its chief action is to relieve pain, it does possess certain resorbent qualities which in some cases are relatively powerful.

Its use is unattended with danger or discomfort.

The use of the pure drug is generally more satisfactory and reliable than that of solutions.

It has not yet been proved that it has any gynæcological value other than as a local application.

PRESCRIPTIONS.

For neuralgia:

℞ Quinine valerianatis, gr. x;
Tinct. sumbuli, ʒii;
Extracti taraxaci, liq., ʒvi;
Infus. cascarillæ, ad ℥ii. M.
A dessertspoonful three times a day.

For croup:

℞ Tinct. ferri perchloridi, ʒi;
Potassii chloratis, ʒi;
Glycerini, ℥i;
Aq. cinnamoni, ad ℥iv. M.
A teaspoonful every two hours to a child four years old.

For diarrhœa in infants:

℞ Acidi carbolici, gr. ii;
Bismuthi subnitratis, ʒi;
Syr. acaciæ, ℥ss;
Aq. menthæ pip., ad ℥ii. M.
A half-teaspoonful every two to four hours (for a child one to two years of age).

For tympanitis:

℞ Ol. terebinthinæ, ʒi;
Ol. amygdalæ dulc., ℥ss;
Tinct. opii, ʒii;
Mucil. acaciæ, ʒv;
Aq. lauro-cerasi, ℥ss. M.
A teaspoonful every three to six hours.

—*Medical Press and Circular*, July 18, 1894.

WHITE SWELLING OF THE KNEE.

SCUDDER (*Boston Medical and Surgical Journal*, vol. cxxxi., No. 5) formulates treatment as below:

The treatment of this disease, which has such a progressive, important set of symptoms, depends largely upon the period in the disease at which treatment is instituted.

The indications for treatment are local and general.

The general indication is to improve the nutrition of the patient by means of properly supplied fresh air, a nourishing diet, and the relief of conflicting disorders.

The local indications are to provide conditions favorable to the process of repair at the site of the disease, to prevent or to correct deformity, and to restore, so far as possible, the functions of the joint.

The local treatment may be classified into the non-operative or expectant; the operative,—erasion, excision, amputation.

There is an impression which seems to obtain in many quarters that, even with continuous rest, a tubercular joint never recovers, and that operative treatment itself, short of amputation, is of doubtful utility. It may be taken as an ascertained fact that the great majority of tubercular joints will recover if properly treated, with complete rest to the joint, and under good conditions of hygiene, sea-air, and nourishing diet.

If, after the palliative and mechanical treatment which secures absolute rest to the functions of the joint,—and this means not only rest from motion, but rest from every trauma,—if, after this careful mechanical treatment, some permanent abatement of symptoms does not occur, as well as evident diminution in the girth of the joint, as shown by accurate periodical measurement, operative interference is called for.

The length of time required in a trial of this palliative treatment should be decided by the condition of the case itself, but at least three months would seem to be sufficient for a fair trial. It is extremely important not to delay too long, for the operative procedures will be sorely handicapped if attempted late in the course of the disease.

Erasion of the knee-joint is the first important operative procedure to be instituted if the protective treatment fails. By the erasion of the knee-joint is understood the removal of diseased synovial membrane and ligaments, and, if necessary, also, to a very slight extent, of bone and cartilage.

The advantages of the operation are: there is no shortening; there is no deformity, other than the cicatrix; there is no arrest of the growth of the limb; free movement of the joint has resulted, although this is not always desirable. The causes of failure of this

operation are: incomplete removal of the disease; failure in maintaining asepsis; inability of the patient to repair the wound left by the operation. Prolonged care is required to prevent flexion of the knee. The leg must be immobilized for some time,—two or three years, or longer, if necessary. In properly selected cases it is safe to class erasion as an efficient surgical procedure.

If the knee is flexed, and has remained so for years, it is corrected by forcible correction of the deformity of flexion. The operation is performed by means of an apparatus purposely devised so that, without increasing the intra-articular pressure, the deformity may be corrected. Seven cases are reported, with good results in all.

Those cases should be excised which the expectant treatment, properly carried out, has failed to benefit, and in which erasion is contraindicated because of the extensiveness of the disease in the hard parts.

Amputation is necessary for those cases in which there exists disease too extensive for excision, and in which the general health is so poor as to demand immediate relief from the tremendous drain of prolonged suppuration.

There are several questions of importance to be considered in connection with the operation of excision of the knee-joint: the necessity of internal fixation; the method of operating; the external appliance to be used; the length of time for maintaining immobility. From a careful review of the experience of many operators, it seems that the accurate approximation of the tibia and femur secured by metallic sutures offers the best internal fixation,—better than that obtained by pins and other means.

The transverse incision through the ligamentum patellæ is most satisfactory, as it affords a more thorough exposure of all the joint surfaces than any of the other incisions suggested.

After the operation a rigid external support is necessary. For a long time—at least a year or more—the unprotected leg should not be allowed to receive the weight of the body. Immediately after the operation a proper protection is provided only where both the hip- and ankle-joints are immobilized. This is best accomplished by a plaster-of-Paris roller bandage extending from the tips of the toes upward and around the body at the hips.

The preservation of the patella is urged and discouraged by equally good authorities. The leg is stiff after operation; there is little use for the quadriceps, and its attachment to the patella, even if preserved, could be of little use. The bones are firmly united together. The patella, therefore, cannot help in retaining the bones in place. If there is any disease in the patella, complete removal of the bone is desirable, so that no portion of the disease may be left behind.

White swelling of the knee-joint is insidious in its onset, slow in its progress, and, if untreated, is sure in its ultimate results; its clinical course is varied. The indications for its treatment are constantly changing.

In many cases of white swelling of the knee-joint there comes a time when just as careful judgment is needed to determine whether mechanical means alone shall be depended upon, or whether operative interference is needed to insure the best results, as is required of the surgeon in the care of cases of appendicitis, where he is called upon to decide for or against operation. The immediate danger from an error of judgment is less in the former than in the latter cases, but the nicety of the judgment demanded is equally great.

The writer concludes his paper with the detailed history of thirteen cases on which he operated with uniformly beneficial results.

IMPERMEABILITY OF THE EPITHELIUM OF THE HEALTHY BLADDER TO MEDICAMENTS AND POISONS.

According to the correspondent of the *Medical Press*, July 18, 1894, at the last meeting of the Académie des Sciences, MM. Boyer and L. Guinard made a communication on this subject. They undertook to demonstrate that the opinion of physiologists on this subject is perfectly justified, that the epithelium of the bladder possesses no absorbent power whatever when perfectly intact. The histological formation of the epithelium in question does not favor penetration, and one has only to think of the physiological *rôle* played by the bladder to be convinced of the error which those commit who believe in its absorbent power. A large number of authorities have put forth views similar to those of the author's, and these latter would not have reverted to the subject had not an opinion diametrically opposite been expressed by a distinguished surgeon (M. Bazy) before the Académie in November, 1893. The authors have demonstrated the truth of their opinion by experiment. Employing first the procedure of Cazeneuve and Lepine, they ligatured ureters and urethra in several dogs and injected into the bladder by means of a fine canula chlorhydrate of strychnine. In these conditions the animals tolerated during seven to nine hours, without the

least sign of poisoning, .02, .03, and .04 gramme of poison.

Wishing to operate under still more physiological conditions, they injected active solutions into the bladders of big dogs, *via* the urethra, by means of a catheter. Many animals being kept perfectly quiet, retained poisonous solutions for periods varying from eight to twenty-one hours. Metallic poisons, irritating substances, and those which give off fumes were not tried. Alkaloids alone were used, it being considered that among these agents there exist elements so poisonous and diffusible that when introduced in strong doses into the bladder they would surely produce rapid death if absorption really took place. Under the preceding conditions twenty-three experiments were made, and in all these not the least trace of any local or general physiological disturbance was noticeable, nor any indication of absorption of the alkaloids. Of these, pilocarpine, atropine and eserine, cocaine, morphine, veratrine, arsenate and chlorhydrate of strychnine in toxic doses were injected.

On every possible occasion the presence of the poisons in the voided urine after the experiments was ascertained, and a control experiment was also performed.

The urine from three dogs which had retained in their bladders .10 gramme of arsenate of strychnine was collected. After concentration this urine was injected hypodermically in two instances into the dogs which furnished it, and in the third instance into several frogs, two guinea-pigs, and a rabbit. All these died with classical signs of strychnine-poisoning.

The authors believe that the mucous membrane of the bladder, when inflamed, permits absorption, and they found death to follow injection of the poisons named when inflammation existed.

TREATMENT OF LATERAL CURVATURE OF THE SPINE.

McKenzie (*Medical Press and Circular*, July 18, 1894) gives an interesting *résumé* of this subject, with some valuable therapeutic suggestions.

The causation of this deformity is a subject of the utmost importance, because, were this fully known and did it receive due attention, much could be done to prevent what is a very common, distressing, and intractable affection.

1. Difference in length of the lower extremities. Recently authorities have been inclined to lay but little stress upon this asymmetry as a cause, but in the observation of the writer it is a very common cause. A considerable number of the cases observed had suffered from infantile paralysis, which had left one lower extremity shorter and weaker than its fellow. As a consequence, the pelvis on that side drooped constantly when standing or walking. In this manner the plane of the base of the sacrum was inclined to the affected side, and a lateral curve of the lumbar vertebræ to the same side resulted. This is almost invariably accompanied by a compensatory curve to the opposite side, higher up in the spine. Sometimes a third curvature is observed, compensatory to the second. Often the extremities are found of unequal length when no definite cause can be assigned for this condition. Whatever the cause of the inequality in the length of the extremities, it is reasonable to consider it as strongly predisposing to lateral curvature.

2. There may be an obliquity of the plane of the base of the sacrum when there is no difference in the length of the extremities.

3. An attitude of curvature at first assumed voluntarily may become habitual. A schoolgirl may carry her books under her arm; may habitually take a wrong position at her desk, or in other ways take an attitude that inclines to one or the other side. This soon becomes habitual; the girl is more "at home" in the false attitude than she would be when erect, and the muscles, ligaments, and even bones of the side of the concavity soon adapt themselves to the new position and become shortened. In this manner an element of permanency is introduced in a case that, at first, was a wrong attitude voluntarily assumed.

4. Constitutional conditions, such as rickets, may act directly in causing unequal development, or may simply cause a weak spine, which readily departs from the vertical because of the pressure of the superimposed weight.

5. The great prevalence of lumbar curves to the left and of dorsal to the right goes to show that the greater use of the right hand and arm is a causative factor.

6. Unequal development of the two sides of the body from obscure causes may be assumed to affect the spine as well as the extremities, and thus become a direct factor in producing curvature.

A very important element in the deformity and the one most difficult to treat is the rotation or twist which occurs in the spine. The signs of curvature most noticeable and most readily appreciable by the inexperienced are inequality of the shoulders, of the angles of the scapulæ, of the hips, and of the ileo-costa spaces, and a departure of the row of spinous

processes from the vertical; but the deviation of the bodies of the vertebræ to the right or left always antedates the curvature, as seen on the surface and indicated by the spinous processes. Their deflection is also much more in degree than that of the spines. This increased distance of the bodies from the centre line causes a rotation about the vertical axis, and the head of the ribs and the first part of the shafts are thrown backward on the side of the convexity, while on the side of the concavity there is a corresponding flattening. In order that the ribs may meet at the sternum, there is a consequent sharp bending in front of the ribs that are flattened behind and a flattening in front of those which are more sharply curved behind. This gives us the marked inequality in the oblique diameters of the chest. This deformity is more common in girls than in boys, and most frequent between the ages of five and fifteen. The tendency is to become worse unless means are adopted to check its advance. Treatment of the constitutional conditions is, of course, of importance. The use of braces, splints, and jackets is to be discountenanced because of many objections. In cases of slight deformity it is difficult or impossible to apply any instrument that will grasp the deformity and hold it in a position of rectification. If it succeeds in doing so, it can only be by an amount of pressure which produces atrophy in parts already weak, and the more so because the pressure must be unintermitting. It more or less interferes with the functions of respiration and circulation, thereby retarding the general development, a matter of the greatest moment in these cases. Further, the patient learns to lean upon the support instead of on her own muscles.

A certain proportion of cases can be satisfactorily treated by gymnastics alone. If the case be one arising from habit, and if, when instructed, the patient can assume the erect position, or can produce considerable improvement by her own efforts, then much good may confidently be looked for from systematic gymnastic treatment.

The hearty co-operation of the patient is essential to successful treatment. All work done should centre about the one idea of assuming and maintaining the most erect and symmetrical position possible. When she has learned how to assume an improved attitude, little good will result, unless her confidence has been gained to such an extent as to insure her continued effort to maintain her bettered position.

The drill given should be daily, if possible, and continued for several months. Several drilling together may be made to stimulate each other to greater efforts, and the improvement effected by certain movements in any one of the number may be witnessed by the others, and becomes a source of encouragement under circumstances where the daily drill is liable to become irksome and monotonous.

Much may be accomplished in the re-education of the senses of the patient, and much to encourage by having the improvement that is possible by personal effort shown while standing in front of a large mirror. If practice is taken in her own room and alone, in the interval between the regular drills, it should be done in this way, so that faulty positions may be avoided. At all times, whether in class or not, no exercises should be permitted until the ideal attitude for each patient has been assumed. The results to be looked for are not dependent so much upon the individual exercises performed as upon the manner of their performance. Whatever the particular movements which are prescribed, if they be executed while standing, sitting, or lying in faulty positions, these wrong attitudes are but confirmed. From time to time the patient should be carefully examined and assisted in assuming the best possible position, and afterwards this ideal attitude should be insisted on. The surgeon must have sufficient resource, sufficient knowledge of the work of the different groups of muscles, must have enough tact to originate and select such exercises as will accomplish most for each individual patient. It is also necessary that he should be able to execute all the movements gracefully himself.

Gymnastics alone will fail in exerting much corrective powers over a large proportion of cases. Since the pressure-correction exerted by braces has been so generally condemned, methods have been employed for exerting great corrective pressure for short periods of time. The author permits the patient to suspend himself by having a strap comfortably adjusted so as to grasp the occiput and lower jaw, having this connected by a cross-bar with a rope passing over a pulley and reaching to the hands of the patient. While he thus suspends himself some distance from the floor, a girth is passed around the body and connected with another rope passing over a pulley and controlled by the surgeon. This girth is so adjusted as to make pressure in the oblique diameter of the thorax in the direction that is found to be most effective in lessening not only the lateral curvature, but also the rotation. At the same time the circumstances are favorable for

using pressure with the hands of the surgeon in such a manner as to untwist the distorted spine.

This may be done for a period of ten minutes every day, or several times a day, with the result of producing much greater suppleness of the trunk. This powerful stretching of the tissues in the concavity of the curve, moreover, becomes a very effectual means of giving massage to the deep-lying structures of that side, and, though weeks or even months may be required to obtain the utmost results possible, yet in a very short time it will be seen that the patient can voluntarily keep the spine in a more extended position.

When there is disparity in the length of the lower limbs, or from any cause an obliquity of the plane of the base of the sacrum, a "lift" should be applied, so as to bring the pelvis to the horizontal.

The maintenance of a perfect correction may be looked for in only a small percentage of cases, but much improvement may be effected in all. For this developmental method of treatment, as compared with the treatment by braces, it is claimed that,—

1. It is more effective in correcting deformity.

2. It results in very marked improvement in the chest development and in general health.

3. It greatly improves the tone, size, and power of all the trunk muscles.

4. It re-educates the sense of erectness, so that the patient can appreciate the difference between an erect attitude and a distorted one.

5. It gives the patient confidence, and puts into her possession the means by which she may not only retain the degree of improvement effected, but may continue for years afterwards to make still more improvement.

EXCISION OF THE WRIST-JOINT BY A NEW METHOD.

MYNTER (*International Journal of Surgery*, August, 1894) details the following method, which he has adopted with very satisfactory results:

Professor Studsgaard, of Copenhagen, advocated a complete splitting of the foot from before backward, in order to gain free access to the diseased focus in the anterior tarsal and posterior metatarsal bones. Incidentally he recommended a similar splitting of the hand for tubercular osteitis of the carpus, making a longitudinal incision between the third and fourth metacarpal bones, and thereafter opening up the joints between the os magnum and unciform bones and between the semilunar and cuneiform bones. Both superficial and deep palmar arches are, of course, severed, and must be ligated in the wound. Mynter follows this procedure, with the exception that he splits between the second and third metacarpal bones, and then enters between the trapezoid and os magnum and between the scaphoid and semilunar bones, as by this incision the hand is more evenly divided in two. He made the dorsal incision reach up to the radius, but found it unnecessary on the volar side to extend the incision farther up than to the base of the thenar eminence. The annular volar ligament was, therefore, not severed. By careful dissection from the dorsal side and forcible separation he found it easy to avoid injuring the dorsal tendons and the large volar tendinous bursa.

The whole carpus could now be widely opened, and it was extremely easy with scissors to extirpate the two halves of the carpus, and with a fine saw to remove the surfaces of the radius ulna and the metacarpal bones. The wound was thereafter sutured, but in order to produce strong and healthy granulations, which secondarily might contract and form fibrous tissue, he packed the large cavity with iodoform gauze, let out through the upper part of the wound on the volar side. The patient got up on the second day and the wound healed by first intention. The gauze packing was removed once a week for seven weeks, and when then omitted the wound healed promptly.

GASTROPLICATION.

Under this name, DR. JOSEPH BRAND (*Oest-Ungar. Centralbl. f. d. Medicin. Wissensch.*, No. 14) has recently described a new operative procedure for the treatment of gastric dilatation. Although devised as long ago as 1889, it was not until February of this year that he had an opportunity of putting it into practical execution. Gastric dilatation is usually due to some form of stenosis at the pyloric orifice, either resulting from new growths, cicatricial tissues, or adhesions, and the aim of surgical procedures has been the removal of the cause of the obstruction. Much has been accomplished in this direction by the exsection of the cicatricial tissue or by resection of the pylorus, and the surgeon can point with pride to the successful results obtained in many of these cases by operative means. There are some cases of gastrectasia, however, in which,

after all medical treatment has been exhausted and laparotomy has been resorted to, none of the above lesions can be discovered, and the operator is obliged to close the abdomen without having made an effort to relieve the dilatation. It is for this class of patients that Dr. Brand recommends his operation, which has for its object the diminution of the size of the stomach by the formation of a fold and suture of its peritoneal and muscular layers. This procedure has been successfully performed in the case of a female patient suffering from extreme dilatation of the stomach, according to the following technique: The abdomen was opened by an incision eight centimetres in length and parallel with the border of the ribs on the left side. The stomach was then sought for, eventrated by slow traction, and the pyloric region carefully examined. No tumor, cicatricial deposit, or adhesions could be discovered at this place, but a distinct flexion had resulted in consequence of the sagging down of the greater curvature. The anterior stomach-wall was then folded inward and sutured in a transverse direction, and to the right and left of the transverse fold a longitudinal fold was formed in like manner. The same proceeding was carried out on the posterior gastric wall, which was rendered accessible by making several slits through the great omentum, through which the organ was drawn. It was found easy to lift the muscular and peritoneal layers from the mucous membrane, which could be felt as a thick seam. Over two hundred sutures of catgut and silk were inserted, and the stomach was then returned to the abdominal cavity. Aside from the wounding of an arterial twig of the arcus vasculosis during the insertion of sutures in the posterior gastric wall, no accidents were encountered during the operation, which was followed by a most rapid recovery.—*International Journal of Surgery*, August, 1894.

COMPOUND FRACTURE OF THE ANKLE-JOINT.

BALCH (*Boston Medical and Surgical Journal*, August 30, 1894) reports five cases of compound fracture of the ankle-joint treated in the Massachusetts General Hospital. They are of interest from the fact that very good results were obtained in cases which seemed to offer little hope of a useful foot when first seen in the accident-room. In one case there was a compound fracture of both ankles and a simple fracture of the thigh; in another, a compound fracture of the ankle and a compound fracture of the other thigh; in another, a compound fracture of one ankle; and in the last, a simple fracture, becoming compound later from sloughing of the skin over a prominent portion of a dislocated astragalus.

We may draw the following conclusions from this series:

1. That, at any rate in the case of poor patients, it is worth while to try to save the leg, even when the ankle is so severely injured that the chances of a movable joint appear very small. To a poor man the appearance of the ankle and the slight lameness caused by some loss of motion in the joint are of little importance in comparison with the expense and trouble of an artificial leg.

2. That a very good way of treating these fractures is on a posterior wire splint. This splint allows us to easily adjust the fragments from time to time, as the swelling goes down, while the foot is held firmly in the right position.

3. That the best dressing is the dry dressing of sterilized gauze, with iodoform gauze for drainage, when necessary. In certain cases a wet antiseptic dressing will hasten the separation of sloughs; but, as a rule, the dry dressing is to be preferred.

RATIONAL TREATMENT OF APPENDICITIS.

ASHTON (*Denver Medical Times*, August, 1894) holds that it is impossible, with our present means and methods of diagnosis, to know the nature of the pathological changes taking place during the course of an attack of appendicitis.

That all forms of appendicitis are dangerous to life, as it has been demonstrated that germs pass through the walls of the appendix without the presence of either ulceration or perforation.

That surgical interference is indicated in primary and secondary attacks of appendicitis, so soon as the diagnosis is clear.

That surgical interference is not advised during an acute attack of appendicitis, except when grave symptoms intervene, unless a competent surgeon is at hand. Under these circumstances the case should be operated upon after the so-called recovery.

TREATMENT OF CHANCRE WITH PEROXIDE OF HYDROGEN SPRAY.

This treatment, according to WORSTER (*Denver Medical Times*, August, 1894), not only relieves the anxiety of the patient and places him

in a delightful buoyancy of mind, but cures the chancre in the shortest possible time, without pain or detention from business, and with less scar and less destruction of tissue than any other method. He then details three cases of the large Hunterian variety, embracing the worst forms of sloughing and phagedena.

The pressure of the spray (sixty pounds), which is one of the most important factors in the whole method, not only cleanses and produces thorough asepsis, killing the germs of the disease at the very bottom of the ulcer, but the oxygen of the peroxide aerates the blood through the capillaries and arrests the progress of the disease at the nearest possible point, allowing the process of repair to commence as soon as possible, with the least loss and destruction of tissue and consequent scar. It must be particularly understood that in using this treatment all instruments, spray-tubes, and bottles must be made of either glass or hard rubber, for the reason that metals, with one or two exceptions, coming in contact with the peroxide will destroy its component parts and render it useless. The first effect of a spray of peroxide upon the ulcer is to deposit upon it a thick film of albumin; this should be allowed to remain for about half a minute or less; then the spraying is continued until a large tubeful has been used (one ounce). As the sore progresses the spraying causes a good flow of rich arterial blood upon it, which merely shows returning healthy conditions.

The treatment is entirely painless, and the patients do not experience any annoyance or inconvenience whatever.

No internal medication during this stage is given. The iodol powder is used only as an antiseptic, to protect the sore from external influence until it is sprayed again the next day.

ATONY OF THE INTESTINE.

FRIEDENWALD (*Medical News*, August 11, 1894), after a careful *résumé* of this subject, advises the following measures:

The treatment of intestinal atony depends upon its cause. If the condition is secondary, the treatment must be directed to the primary disorder.

Chronic constipation is the symptom that occasions most annoyance, and special attention must be directed to it. In all uncomplicated cases of atony of the colon the condition can be successfully relieved by simple measures. The hygienic and dietetic treatment is highly important. Inasmuch as sedentary habits predispose to this disorder, exercise is of some value in many cases. This should consist in walking, as well as in gymnastics in which movements of the trunk play a prominent part.

Such foods are ordered as stimulate intestinal peristalsis. In this class are included substances that furnish a large quantity of undigested residue, such as fruits, vegetables, salads, Graham and rye breads. When there is no special contraindication (such as gastric atony), large quantities of cold water taken before breakfast may be serviceable.

There are certain natural mineral waters which are sometimes of great value in the treatment of intestinal atony unaccompanied by atony of the stomach; the Glauber salt waters belong to this class. The waters of Marienbad are considered of great value in this class of cases, especially in the obese; but the saline waters—Kissingen Rokoczy—are sometimes preferable. However, as many cases of intestinal atony are accompanied by atony of the stomach, the use of large quantities of water in these cases should be very restricted.

Persons suffering with intestinal atony should avoid the use of food that tends to constipate. In this class may be especially mentioned red wines, tea, and rice.

The systematic employment of abdominal massage is of great value. There are but few uncomplicated cases of intestinal atony in which the constipation does not yield to this form of treatment. In very persistent cases the manipulation must be practised daily, or on alternate days at least, for from eight to twelve weeks. To be effectual the movements must be deep.

Abdominal massage is much assisted by electricity; by the external application of moderately strong faradic currents good effects are usually obtained; or the faradic current may at times be applied internally, one electrode being placed in the rectum, the other on the abdomen. When the galvanic current is used, the rectum is filled with water before the negative pole is introduced, the positive pole being placed upon the abdomen.

In cases in which massage and electricity cannot be employed, excellent results are frequently obtained by injections of large quantities of oil, as recommended by Fleiner. When the conditions insisted on by Fleiner are fulfilled, the injections rarely fail. In a large number of cases in which the author has employed these injections for the treatment of this form of chronic constipation, they rarely proved unsuccessful. The regulations to be fulfilled are: 1. Only the very purest oil should be employed; olive oil is the best. 2. Large quantities of the oil (from 10 to 15 ounces),

heated to the temperature of the body, must be injected while the patient is resting on the back with the pelvis raised. 3. The injections must be given carefully and slowly, so that no air enters the colon. When air is introduced severe colicky pains are frequently produced and the oil is immediately ejected. 4. The oil must be retained in the bowels for several hours; for this reason it is best for the patient to remain in the reclining position for several hours after the injection has been given.

When the injections of oil and the other methods just mentioned cannot be employed, injections of other fluids, such as warm water, cold water, glycerin, may prove serviceable. The introduction of glycerin suppositories into the rectum, or the application of powdered boric acid to the mucous membrane of the rectum, sometimes gives relief.

The employment of cathartics is in most cases to be deprecated. Inasmuch as patients become quickly habituated to remedies of this kind and their effects gradually wear away, larger and larger doses become necessary. When cathartics must be given, the simplest are the best, and the various preparations of cascara sagrada probably head the list. Pills of strychnine sulphate, or the extract of nux vomica with belladonna, are to be highly recommended, as tending to strengthen the relaxed condition of the bowels.

AMPUTATION IN OLD CASES OF INFANTILE PALSY.

In a monograph upon this subject (Thèse de Lyon, *Lyon Médical*, July, 1894), Césor insists that operation would be of great benefit in many cases, from the complete uselessness of the affected members.

The following are the conclusions with which he concludes his paper:

1. The functions are interfered with.

2. They are the seat of lesions, such as trophic ulcers, arthropathies, multiple fractures, etc.

3. Following Poncet, he proposes amputation, justifying it by the functional impotence and nutritive disorders.

4. Amputation is especially applicable in the lower extremity, where the application of an artificial member permits of easier and better walking.

5. In the case of double atrophy of the lower limbs, double amputation (the one following at some interval after the other) will allow the patient a better chance to move about than with two useless limbs dragging after him.

6. Amputation of paralytic arms is often indicated, and the proper use of asepsis renders operation through unsound tissues less dangerous than formerly.

TREATMENT OF HEREDITARY SYPHILIS.

Under the head of "Direct Treatment," Simon (*Revue Internationale de Bibliographie Médicale*, July, 1894) recommends for an infant of five to six weeks:

Liqueur de Van Swieten, gtt. xx.
Four times a day in milk.

Simultaneously inunctions morning and evening of unguentum Neapolitanum, ½ to 2 grammes.

This treatment is continued for five to six months, after which the mixed treatment is presented.

Syrupus Gilberti, ¼ to ½ a coffeespoonful in water.

For baths:

Sublimate, 2 grammes;
Alcohol, 30 grammes.

For a bath of a quarter of an hour:

Bichloride of mercury, 4 grammes;
Hydrochlorate of ammonium, 6 grammes;
Water, 2500 grammes.
Taken in a wooden bath-tub.

For "indirect treatment," when the mother or the nurse cannot be medicated, then apply mercurial frictions or administer potassium iodide to a goat or a jenny, and use the milk.

"Local treatment" for mucous patches: touch with solid nitrate of silver, iodoform, or calomel.

For ulcerations:

Corrosive sublimate, .25 gramme;
Warm water, 100 grammes.

For osseous tumors, apply the plaster of Vigo. Separation of the epiphysis should be treated by fixation of the fragments. If the separation is complete, remove surgically as a foreign body.

DOUBLE CASTRATION FOR ENLARGED PROSTATE.

Eklund (*Revue Internationale*, July, 1894) relates two cases reported by Raum ("Transactions de la Société Médicale de Christiania," January 17, 1894), in which cystitis persisted, and which disappeared like magic after the

removal of the testicles. The hypertrophy of the prostate decreased immediately.

ERYSIPELAS IN CHILDREN.

TORDEUS (*Therapeutische Blätter*, July, 1894) applies locally compresses saturated with,—

℞ Spirit camphor., 1000;
Hydrarg. chlor. cor., .05.

Internally a solution of antifebrin and resorcin, in doses of as many centigrammes of antifebrin as the child is years old, and of resorcin twice as many centigrammes as the child is years old. This solution is given three or four times a day.

GONORRHŒA OF THE UTERUS.

In the *Centralblatt für Gynäkologie*, R. NOCH (*Therapeutische Blätter*, July, 1894) proposes the following salve:

℞ Alumnoli, 7.5;
Lanolini, 100;
Aquæ dest.,
Glycerini, of each, 25.
M. et ft. unguentum.
Sig.—Inject every three or four days.

Reviews.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS, WITH ESPECIAL REFERENCE TO THE APPLICATION OF REMEDIAL MEASURES TO DISEASE AND THEIR EMPLOYMENT UPON A RATIONAL BASIS. By Hobart Amory Hare, M.D. Fourth edition, thoroughly revised and enlarged.
Philadelphia: Lea Brothers & Co., 1894.

The following is part of the preface to the fourth edition of Dr. Hare's book:

"The fourth edition of this work having been called for in less than four years after the appearance of the first, the author has taken advantage of the opportunity to rewrite and add to many of the articles on drugs, remedial measures, and diseases, and to insert practical information concerning the value and prescription of the really useful remedies. Articles on methylene blue, chloralose, pyrogallol, condurango, convallaria, duboisine, and other remedies have been added to the part of the work dealing with drugs. In the part dealing with remedial measures other than drugs articles have been written on hypodermoclysis and enteroclysis, lavage, and upon mineral springs and climatic treatment. The latter article is not intended to be exhaustive, but to give the general practitioner an idea of the therapeutic value of certain well-known resorts, in order that he may offer rational advice to his patients as to where they should go in search of health. Several new articles in the part devoted to the treatment of individual diseases have been inserted, and new or modified applications of the older remedies carefully noted throughout the entire book.

"In addition to these changes, the work has been revised in such a way as to render it uniform with the new U. S. Pharmacopœia. As that authority directs the use of the metric system, the doses of all drugs are given in both apothecaries' and metric weights, thus, 15 to 30 grains (1.0–2.0), so that the physician may conveniently use either system.

"It is hoped that this new edition will prove even more useful than its predecessors to the doctor who needs a book for ready reference in daily practice."

THE PHARMACOPŒIA OF THE HOSPITAL FOR DISEASES OF THE THROAT. Fifth edition.
Philadelphia: P. Blakiston, Son & Co., 1894.

This book contains the formulæ employed in the Throat Hospital in Golden Square, London, which was founded by Morell Mackenzie. Those who are called upon to treat this class of cases and who desire set formulæ will doubtless find this work of very considerable value. It has been carefully edited by Mr. Harvey, one of the surgeons to the hospital.

INEBRIETY OR NARCOMANIA: ITS ETIOLOGY, PATHOLOGY, TREATMENT, AND JURISPRUDENCE. By Norman Kerr, M.D., F.L.S. Third edition.
London: H. K. Lewis, 1894.

No practitioner of medicine goes through a year of professional life without having his attention called more or less directly to the treatment of inebriety in one of its forms. Not only is this true, but some of the most puzzling questions which he is called upon to decide arise in the treatment of this class of cases, for he is not only consulted by the patient, but by the patient's friends, who desire to know what the relationships may be, legally and morally, between themselves and the person who is affected. In addition to discussing his subject in a truly scientific and practical manner, Dr. Kerr has added very greatly indeed to the value of his book by his chapters on "Inebriety in its Medico-Legal Aspects," in which both English and American jurisprudence has been carefully studied, and the facility of ready

reference has been increased by a summary of each paragraph in heavy black letters set in the side of the text. The book is in every aspect to be highly commended, and is peculiar in the fact that it is of equal value to the specialist in the treatment of this class of cases and to the ordinary practitioner. While many of the prescriptions are somewhat more complicated than we would recommend theoretically, they all possess the advantage apparently of having had practical application.

A Treatise on the Principles and Practice of Medicine. By Austin Flint, M.D., LL.D. Seventh edition. Thoroughly revised by Frederick P. Henry, A.M., M.D.
Philadelphia: Lea Brothers & Co., 1894.

Among the large number of new books upon the practice of medicine which have been presented to the profession within the last few years, there is none which will stand better in the present or in the future than the seventh edition of this book, which has done as much for the reputation of American medical literature as any other single volume which any author has produced. It has been a characteristic of Dr. Flint's book, in its original form and under its various modifications produced by different revisers, that its description of clinical cases and of the practical side of disease has been always wonderfully true to life, and it is not surprising that this characteristic has not only been preserved, but added to by the careful editorial work of so conservative yet progressive a physician as Dr. Henry. Further than this, we think that the profession is to be congratulated that the publishers, in obtaining an editor, chose one so peculiarly well qualified to revise and bring up to date those articles in connection with which the greatest progress has been made in medical study, for Dr. Henry represents at once that side of professional life which appreciates all that which is good and at the same time is not so optimistic as to swallow in addition much that is bad. As the editor well says in his preface, he has constantly borne in mind the maxim, "Hold fast to that which is good," and in so doing has held fast to nearly all. Of the changes in this volume, we note that the chapters on Pathology have been very properly taken out, as pathology is now a subject which must be considered by itself. Among the new articles are ones upon Pulsating Pleurisy, Weil's Disease, Syringomyelia, Influenza, Hereditary Chorea, and a number of others, while the chapter upon Dyspepsia has been entirely remodelled on a modern basis; there are also good articles upon Amœbic Dysentery and Amœbic Abscess of the Liver. We believe that the profession, the teachers, and the students of the country will appreciate this renovated volume as being one of the best, if not the best, all-around text-books of the subject which they can obtain, and we congratulate Dr. Henry upon the successful completion of a task which was proportionately great with that of the reputation of the author and of his text-book.

Anæsthetics and their Administration. By F. W. Hewitt, A.M., M.D., Cantab. Illustrated.
London: Griffin & Co., 1893.

Notwithstanding the date on the title-page of this book, it has just been received for review. No one who reads its pages can fail to be impressed with the fact that Dr. Hewitt has brought to his pen the results not only of wide personal experience, but of a thorough knowledge of most of the literature connected with the important subject of anæsthesia. We note, however, in a number of places that he has failed to quote the most recent studies upon this important topic. The only reference that we find to the praiseworthy work of Lieutenant-Colonel Lawrie is in a foot-note on page 218, and the work of the Hyderabad Commission is referred to with almost equally scant reference, as is also the work which has been done in this country on the same subject. The article on Bromide of Ethyl is also imperfect for similar reasons. Although Howard's method of resuscitation is mentioned, various criticisms of it are ignored, and the improvements which have been made in it are not mentioned. The book may, therefore, be considered as being a useful summary of the subject up to about 1891 or 1892, and it is to be regretted that the author did not take the opportunity as the book went through the press of including the work which has more recently been performed.

With the well-known book of Dr. Lawrence Turnbull in this country and that of Dr. Buxton, of England, the profession is now supplied with three modern works upon the administration of those drugs which produce general surgical anæsthesia. All of them are exceedingly valuable, and every physician who uses anæsthetics constantly should be possessed of all three.

A Treatise on Diphtheria. By H. Bourges, M.D. Translated by E. P. Hurd, M.D.
Detroit: George S. Davis, 1894.

This book is one of the series known as the "Physician's Leisure Library" series, published by Mr. Davis, at twenty-five cents a

copy, during several years past, and it does much towards maintaining the high standard attained by previous issues of the series. After a careful perusal of its pages, we find that the author expresses the views which we believe to be the best and most recent upon the etiology and pathology of diphtheria, and carefully places in separate chapters all those conditions which have been confused with diphtheria under the head of "false diphtheria." He emphasizes the fact that the disease is primarily and strictly a local one. The chapter on Treatment is, we think, unnecessarily brief, but nevertheless good, although we do not find a description of those remedies to which we most frequently resort in this country. The hand of the translator is seen through many pages, and he has taken care that the apparatus made by American manufacturers and the work done by American bacteriologists should not be ignored. The book is to be commended to those who wish a good summary of our knowledge of the subject as it exists to-day.

INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, U. S. A. Vol. xv. Universidad to Vzoroff.
Washington: Government Printing-Office, 1894.

The fifteenth volume of this magnificent register of the medical literature stored in the library at Washington differs naturally in no way whatever from its well-known and most-valued predecessors, and as it extends to the letters named at the head of this review, it will be seen that practically the entire alphabet has now been covered, and that so far, at least, the work may be considered complete. To any one who desires at any time to refer to medical literature, recent or remote, this book is a priceless treasure, and the profession should act as a unit in urging upon Congress the importance of contributing towards equally laudable endeavors in that portion of government work which is so beneficent not only to the profession, but to the entire population of the country.

A SYSTEM OF LEGAL MEDICINE. By Allan McLane Hamilton, M.D., and Lawrence Godkin, Esq., with other collaborators. Vol. I. Illustrated.
New York: E. B. Treat & Co., 1894.

We have examined the first volume of this very valuable contribution to medical jurisprudence with much interest. "Taylor's Medical Jurisprudence" has been for so many years, above all others, the authority upon such subjects, at least with the medical profession, that the introduction of a rival in literature is worthy of note. The names of the contributors are in each case a guarantee of their articles, and the scope of each article is sufficient to discuss creditably the subject considered.

It is impossible in the brief notice which we can give this "System" to name all of the authors or even to give a summary of the table of contents. Some of the most familiar names are those of Dr. Mills, of Philadelphia, Dr. Dana, of New York, Dr. Vaughan, of Michigan, and Dr. Sturgis, of New York. The article upon the "Obligation of the Insured and the Insurer" is by that Nestor of the Philadelphia bar, R. C. McMurtrie.

Some of the illustrations through the volume are, unfortunately, not as good as the text.

This "System" is to be completed in two large royal octavo volumes of seven hundred pages each, and should be possessed by every physician, if for no other reason than that he may be able to defend himself in cases of blackmail or in other attempts to do him injury.

AERO-THERAPEUTICS, OR THE TREATMENT OF LUNG-DISEASES BY CLIMATE. By Charles Theodore Williams, M.D.
London: MacMillan & Co., 1894.

This book comprises the Lumleian Lectures for 1893, with an address upon the high altitudes of Colorado, and should be carefully studied by all those who are interested in the relation of climate to disease. It is particularly useful in that it records the personal experience of Dr. Williams with a large number of patients who have been sent away for climatic treatment, and also because Dr. Williams has personally examined into a number of the climates which he discusses. The book also gives us first-rate scientific information concerning many health resorts which few Americans frequent. Its chapters include, first, "The Factors and Elements of Climate;" second, "Temperature and Moisture;" third, "Barometric Pressure in its Relation to Health and Disease." The type is large and easily read, and the style pleasant, notwithstanding the conciseness of the text.

LES UNIVERSITÉS DES ÉTATS-UNIS ET DU CANADA ET SPÉCIALEMENT LEURS INSTITUTIONS MÉDICALES. Par le Dr. O. Laurent. Twenty-two figures and plans.
Paris: G. Carré, 1894.

With more accuracy than is common on the part of French or Belgian writers concerning American medical facts, this author has described medical education and medical charities in the United States as he saw them while on an official visit to this country. He obtained numerous pictures, illustrating the insti-

tutions of which he writes, which are scattered in an interesting way through his volume, and although there are a number of familiar American names misspelled, and dollars and francs are sometimes transposed, the book will give a fair impression of our medical resources to the European who may desire to learn something of them through French text.

Correspondence.

OPHTHALMIA NEONATORUM.

To the Editors of the THERAPEUTIC GAZETTE:

DEAR SIRS:—The concluding portion of an address by Dr. G. E. de Schweinitz in the August number of the GAZETTE contains some very good suggestions, which I desire to slightly elaborate. In the first place, many surgeons seem to regard purulent ophthalmia as too small an affair to engage their attention, and so they write a prescription for a lotion and direct the nurse to apply it about so often. Unfortunately, it is often the case that the best nurses are not placed in charge of obstetrical nursing, but are given the more brilliant cases of abdominal surgery. In any case it is not a safe procedure. The surgeon should give these cases his personal attention, and the severity of the disease and the results of failure warrant as much care as any capital operation.

The room should be as carefully prepared as if an abdominal operation were to be made in it. All hangings, rugs, upholstered furniture, and unclean articles of every kind should be removed. No sweeping should be permitted, but instead damp cloths for cleansing. The surgeon and all attendants should have scrupulously clean hands and persons. All cloths used in cleansing the eyes should be of gauze or thin muslin, prepared by boiling, and should be kept in a glass jar in a one-per-cent. solution of carbolic acid. Every four to six hours the eyes should be washed out with a solution similar to this:

℞ Acidi carbolici., ♏v;
Acidi boric, gr. x;
Glycerini, ʒi;
Aquæ, ad ℥iv. M.

A small glass syringe does very well for washing the eyes. The lids can be very gently raised and the solution made to flow under them by very slightly depressing the piston. In handling the eyelids the greatest precaution must be observed. The surgeon's hands should be softened by thorough washing in hot water, and at last dipped in two-per-cent. carbolic acid solution. After this cleansing, small pieces of single- or, at the most, double-thickness cloths should be taken from the jar and laid over the affected eyes and kept there until the next irrigation. As soon as the inflammation has begun to subside, coagulated egg albumin will be found to be a very useful application. It should be applied once daily and left on for at least one hour. It is prepared by taking the albumin of one egg in a shallow dish, and beating it with a lump of alum until it curds. A teaspoonful of this may be applied to each eye.

Some of the advantages of the treatment outlined above are that it will arrest mucous inflammation in any part of the body, and, further, that it is infinitely less painful than permanganate of potassium or bichloride of mercury, carbolic acid being distinctly anæsthetic.

W. L. WADE, M.D.
349 SOUTH BROADWAY, LOS ANGELES, CAL.

HYDROPHOBIA; STATISTICS DESIRED.

To the Editors of the THERAPEUTIC GAZETTE:

DEAR SIRS:—Will you permit me, through your columns, to ask that my professional brethren will communicate to me the occurrence of cases of so-called hydrophobia in their practice for the year 1894, from January 1, and so on until the end of this year?

I would like in all cases to learn: 1, the sex and age of patient; 2, (*a*) the kind of animal that is credited with the inoculation, (*b*) its state of health, (*c*) the provocation to bite (if any existed), (*d*) the reasons why the animal was (if it was) deemed rabid; 3, the seat of the bite (or other mode of inoculation); 4, the fact and method of cauterization (if any); 5, the time between the inoculation and the outbreak; 6, the symptoms of the outbreak,—the occurrrence of mania or imitation of dog actions; 7, the remedies used and doses, with their seeming effect; 8, the issue of the case and when death occurred; 9, the investigations made to exclude the presence of disease other than so-called hydrophobia; 10, the findings on autopsy, if one was held.

I shall, of course, acknowledge in future publications aid received in continuing my studies in regard to this subject.

Yours respectfully,

CHARLES W. DULLES.
4101 WALNUT STREET, PHILADELPHIA, PA.

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